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SKILL DEVELOPMENT FOR WOMEN EMPOWERMENT IN INDIA: A REVIEW

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ABSTRACT

Gender equality and empowerment plays an important role in economic development. In India majority of women and men residing both in rural and urban areas are unskilled. However, more number of women residing in the rural areas is unskilled compared to men living in both rural and urban areas. And these unskilled women workers are working in the informal sector facing many problems including lack of skills. The studies reveal that more than 90 per cent of women workers are concentrated in the informal sector. However, the condition of women in the informal sector is miserable, most of time they have to work in extremely low wages and without any job security and social security benefits, apart from these working conditions also unsatisfactory. And for all these problem lack of skill among women is one of the main reasons. Hence, to empower women working in the informal sector and fulfill the dream of Make in India concept of our Hon. Prime Minister there is an urgent need to transform them as 'skilled worker' through suitable programmes and policies. This paper mainly focused objectives like, to discuss the importance of skill development for women empowerment in the informal sector in India, analysis the challenges for women to attain skills, and to suggest suitable policy measures to improve employability of the women workers in the informal sector. The proposed study mainly is descriptive in nature and based on secondary sources. The study suggests that there is a need to further develop HRD and training policy from a gender perspective, with an understanding of local customs and traditions. Besides this, there is a need to make the skill development process accommodating and flexible to encourage women to enroll. The training may have to incorporate teaching of basic skills such as numeracy, problem solving, communication, learning to learn, and team work and, other deeply impacting skill such as behavioral skills, including building self-esteem, self-organizational and negotiating capacity for employment purpose.

KEY WORDS: *Empowerment, Skill, Gender Gap, Training, Informal*

INTRODUCTION

Gender equality and empowerment plays an important role in economic development. In India majority of women and men residing both in rural and urban areas are unskilled. However, more number of women residing in the rural areas is unskilled compared to men living in both rural and urban areas. And these unskilled women workers are working in the informal

sector facing many problems including lack of skills. According to the Census of India 2011, women constitute 48.46 percent of the total population and about 25.67 percent of them are designated as workers (GoI, 2011). In India the presence of the non-formal economy has been overwhelmingly large with 92 per cent of the total workforce of about 458 million poor and vulnerable workers being part of this economy



(GoI, 2012). The studies reveal that more than 90 per cent of women workers are concentrated in the informal sector. Hence, it can be said that informal sector in India is the women's sector. However, the condition of women in the informal sector is miserable, most of time they have to work in extremely low wages and without any job security and social security benefits, apart from this working conditions also unsatisfactory (Neha Mittal, 2012).

According to the National Sample Survey Office's (NSSO) 68th round (2011-12), 79 per cent of the informal workers do not have a written job contract; 71 per cent are not eligible for paid leave; and 72 per cent are not eligible for any social security benefits (NSSO, 2014). Hence, several international and national commissions, committees, research studies, seminars and discussions in the last six decades have documented the socio-economic conditions of women workers in the informal sector in India. However, still the status of women in the non formal sector is far from satisfactory. And for all these problem lack of skill among women is one of the main reasons. Hence, to empower women working in the informal sector and fulfill the dream of Make in India concept of our Hon. Prime Minister there is an urgent need to transform them as 'skilled worker' through suitable programmes and policies. Against this background the paper is designed with the following objectives.

OBJECTIVES AND METHODOLOGY

1. To discuss the importance of skill development for women empowerment in the informal sector in India;
2. To analyse the challenges for women to attain skills;
3. To suggest suitable policy measures to improve employability of the women workers in the informal sector.

This paper is based on the information gathered through available secondary sources and literature reviews. The secondary sources include the reports collected from governmental reports, journals, articles, books, documents of various ministries/departments and organizations, papers and web-sites are used in this study. The proposed study mainly is descriptive in nature.

SKILL REQUIREMENT FOR WOMEN IN THE INFORMAL SECTOR

As per the skill gap study conducted by the National Skill Development Cooperation during 2010 - 2014, there is an additional net requirement of 109.73 million skilled manpower by 2022 across twenty four key sectors. But in the case of women, they are today facing the economy which is increasingly becoming less-labour intensive but more capital, technology, knowledge and skills driven. Besides that they are overwhelmingly work in the informal economy, with less education and generating lower incomes than men. It is proven that female participation in the workforce increases along with educational levels. Hence to unlock the full economic potential of women's participation, India needs to bring about an employment revolution, along with a skill development or educational revolution. It is also observed, that the concept of training and skill development of women needs to move beyond the conventional goal of imparting technical and managerial competencies, to playing a broader role of even including basic literacy, numeracy, critical social and political awareness, awareness about gender and enhancing life skills (FICCI, 2014, Nitika Diwakar and Tauffiqu Ahamad, 2015).

India is experiencing a demographic dividend as more than 50 per cent of the population is in the working age group which can make India the skill capital of the world. It is estimated that by 2020, the average Indian will be 29 years of age compared to average age of 37 years in China and US and 45 years in Europe and 48 years in Japan. However, skilling this youth bulge constitutes a challenge particularly when there is preponderance of informal sector (Sunita Sanghi and Kuntal Sensarma 2014). In fact, during the next 20 years the labour force in the industrialized world is expected to decline by 4%, while in India it will increase by 32%. This poses a formidable challenge and a huge opportunity. To reap this demographic dividend which is expected to last for next 25 years, India needs to equip its workforce with employable skills and knowledge so that they can contribute substantively to the economic growth of the country (Nitika Diwakar, Tauffiqu Ahamad, 2015). However, research conducted in the informal sector suggests the need for further research into the prevailing conditions that have led to the failure of the existing training and skill development initiatives of the government. It also demands action in the form of policy change and local level initiatives and building of



institutes that are sensitive to the needs and work conditions experienced by women and men separately.

The aim of skill development, particularly in case of women, is not merely to prepare them for jobs, but also to improve the performance of women workers by enhancing the quality of work in which they are engaged. Training and skill development will encourage higher self esteem among women and overall personality development. It is also urged that for skill development to be more effective, training needs to bend towards developing the kind of skills women already know. However, focus on upgradation need not be at the cost of developing new skills, especially in the case of women who otherwise may get further entrenched in traditional skills and roles. Hence, there is a need to make the skill development process accommodating and flexible to encourage women to enroll (GoI, 2015). The 11th five year plan (2007-12) has recognized India's massive need to skill millions of formal and informal workers in the next ten years. In response, the government has developed many schemes to increase the proportion of formal and informal skilled workers in its total workforce especially women from a mere 2 percent now to 50 percent by 2022, thus creating a 500 million strong resource pool. Therefore it is clear that there is an urgent need for a paradigm shift in the skill development sector, in favor of special training, innovations and high quality training.

CHALLENGES FOR WOMEN IN ATTAINING SKILL

The informal sector includes small entrepreneurs, paid and unpaid establishment workers, independent workers, casual workers etc. The majority of women working in informal sectors learn their skills on the job, something that is common to both the formal and informal sectors. However, many times, apprenticeship might provide basic skills but does not familiarise the workers with new technologies or managerial skills (Singh, 1992). Constraints of both time and money often prevent women workers in the informal sectors from acquiring further training, even when such facilities exist. It is also to be noted that the initiatives required to skill the workforce, cannot be assumed to be the same for both men and women, as women and men face very different social and economic circumstances in India. Gender differences abound right from the access to and the availability of education and training, to the conduct of training programmes.

Women face complex ground realities, including low levels of literacy, discriminatory social customs and traditions, limited hours available for training and work, and limited exposure and unfamiliarity with new technology. Besides that, low social value is attached to girl's education, and as they are considered secondary income earners, lower importance is given to training of girls for employment. Hence, a sustainable skill development programme would aim to take on board, both women's as well as men's concerns and experiences. These should form an integral part of the design, implementation, monitoring and evaluation of policies and the programmes on skill training and development. The key strategy for women's empowerment and gender equality is to combine policy and institutions at the local level (Anju Malhotra *et al*, 2009).

Apart from this, The National Skill Development Corporation (NSDC) has identified a few of the major challenges, which need to be addressed for building a conducive ecosystem, of skill development for the women workforce. These are as follows, (i) the large number of women who need to be trained since currently only 2% of the female workforce is formally trained, (ii) inadequacies in the quality and relevance of TVET (technical and vocational employment training in India), (iii) inadequate Infrastructure, acute shortage of trained women workers, poor quality of training, (iv) lack of mechanisms to judge and certify quality, (v) inequity in access to TVET for women (vi) low level of education of potential women trainees that limits training of women in the formal sector, (vii) lack of recognition of prior learning of potential women trainees (viii) relatively high opportunity cost of learning involved for training women (Institute of Social Studies Trust, 2012). Hence, it can be said that women face unique problems in attaining skill and there is a need for unique solutions.

MAJOR SUGGESTIONS

Following are some of the suitable policy measures to improve skills of women workers in the informal sector.

Need for Gender Sensitive Training and Policy

First and foremost there is an urgent need to further develop HRD and training policy from a gender perspective, with an understanding of local customs and traditions. It also implies focus on improvements in access to education and training for girls, including the provision of services, such as transport, hostels,



scholarships, and other incentives to encourage women to enroll for education and training. Besides that the training may have to incorporate teaching of basic skills such as numeracy, problem solving, communication, learning to learn, and team work and, other deeply impacting skill such as behavioral skills, including building self-esteem, self-organizational and negotiating capacity for employment purpose. Issues of identity, autonomy, leadership, rights and responsibilities, entrepreneurial and business management skills, increasing awareness on gender are to be relevant issues for women.

Streamlining the Skill development programmes

The entire national skill development system should be put under the umbrella of one ministry, rather than running them under the leadership of two key Ministries, i.e. Ministry of Labor and Employment and Ministry of Human Resource Development and several other Ministries. This will lead to better focus and coordination between different initiatives.

Up gradation of the craftsmen training scheme

The main institutions under the craftsmen training scheme in India are public Industrial Training Institutes (ITIs) and private Industrial Training Centers (ITCs). The aim of the ITIs and the ITCs is to provide skilled workers to the informal sector, however, evidence shows that both the institutes have performed poorly on their mandate. ITIs have been criticized for offering training in trades that are out dated and not relevant for the modern day employment requirements. Furthermore, “the share of ITI graduates who entered self employment or became employers was not much greater than 10 per cent while only around 5 per cent of ITC graduates joined the unorganized economy. The main reason is that running a small business requires much more than simply possessing a particular occupational skill. It requires the ability to run a small business, which requires a person to be multi-skilled. This sort of training is not imparted in the ITIs and ITCs. Hence, there is a dire need to upgrade the craftsmen training centre. Besides, the expansion of ITIs and ITCs, it is equally crucial to build basic infrastructure especially in remote areas, making ITIs more accessible, particularly for women.

Provision of vocational training in schools

The dropout rate from schools is high usually after the 8th standard. Most often, the drop outs from schools at this stage have very little technical skills, and have no option but to join the informal sector. It is therefore recommended that vocational education should be introduced at the level of secondary education, or from 9th standard onwards, to attract students who may drop out, to skill them and as a result provide them with better livelihood opportunities. The National Vocational Education Qualifications Framework (NVEQF), currently being developed, will encourage integration of vocational and general education.

Making Use of private sector

If India has to benefit from the demographic dividend, the private sector has to take a responsible position in the skill development sector. Two policy level changes that could be undertaken are: (a) As more investments are crucial for skill development sector, one innovation that is suggested for India, is taxing of medium and large industries to contribute to a fund for reinvestments in skill development. Such a provision which is successfully in place in 61 countries, not only substantially supports the skill development efforts of the country, but also helps in meeting the demand for skilled persons from the industry. And (b) Local industry needs to become members of the governing body of ITI, to guide them about the new and emerging needs of the industry.

Changes at attitude level of the society

Along with other measures, identifying and making efforts to change basic and nuanced socio-cultural values with a view to eliminate existing biases that women in the country face when seeking employment is necessary. Greater efforts are needed in the form of awareness programmes, counseling of families to assuage their fears with regards to training of women, and investment in personality development of women to be able to analyze and challenge discriminatory practices.

Identification and Up Gradation of Skills

One method of encouraging participation in skill development is the identification of skills that are already known and up gradation of the same; such an approach would increase the acceptability of the training being offered. It is also equally important to provide training after identification of changing norms



and aspirations of women. To make training programmes actually accessible to women, it would be crucial to provide additional basic services and facilities such as, safe and secure transport, toilets, etc.

Need for Accessible and affordable training

With poor infrastructure, accessibility continues to be a major problem for women. Hence, It is crucial to build and fund modern institutes of training, which are made easily accessible for women by building additional infrastructure for instance in terms of safe and secure roads. To enable and encourage individuals belonging to low income groups to join vocational training programmes, it is important to provide quality training at an affordable cost with the option of availing loans and scholarships.

Channelizing training through the local institutions

Additionally, channeling training through the existing local institutions of governance can prove to be very fruitful. Local institutions include the gram panchayats, where women have a stipulated representation of 33 percent seats. Women from the gram panchayat may be assigned the role of identifying the most desired needs of the women in the village.

Support services beyond training

Providing employment opportunities to trainees after the completion of training will go a long way in assuring sustainable livelihood options and economic independence, especially in case of women. By ensuring that NSDC (National Skill Development Corporation) funded organizations place at least 70% of its trainees, NSDC has been able to facilitate employment of many workers to a large extent. But the target of productively employing workers is gigantic in India, and these efforts need to continue and achieve goals at a high rate to have any impact.

Apart from this, special mechanisms in the delivery of training such as mobile training units, flexible afternoon batches, training based on the local needs of the area, will be introduced to ensure participation and mobilization of women. Appropriate incentive mechanism will be designed to achieve the same. Training in non-traditional fields for women will be promoted through the establishment of specific training programmes that focus on life skills training modules and literacy training. Along with that, efforts will be made to increase the pool of women trainers and providing them certification by earmarking a

certain percentage of intakes in training of trainers institutes, for women. New institutes exclusively for training of women as trainees and trainers will also be promoted by Government.

CONCLUSIONS

Various governments both central and state have made several efforts to uplift women workers in the informal sector through several innovative programmes. However, it has not succeeded up to a satisfactory level due to many confronting issues and inhibitions. In order to unlock the full potential of women workforce in India, the need of the hour is to bring about an employment revolution along with a skill development revolution. The planners should focus on women specific policies for their effective participation in the employment market. As it would help India to meet its skilling target and reap benefits of having the largest workforce by 2025 and make 'Make in India Concept' a successful one.

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VIOLENT CONFLICTS IN THE NORTH CENTRAL STATES OF NIGERIA AND THE IMPERATIVES OF PEACE-BUILDING IN NATIONAL DEVELOPMENT

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ABSTRACT

Conflicts in Nigeria have not only assumed a violent dimension, they are a recurrent decimal; ceasefire, disarmament, peace accords, silent and open interventions failed to guarantee improvement in safety and peace. Some of the self-styled post conflict environments give way to tension and even more threats to live than periods preceding violent conflicts. Plausibly, most interventions are superficial and fail to depict the motives of groups and individuals implicated in violent situations, by which the real and perceived sources of threats remain cloaked. This study has also observed that there is a stereotypic reconciliation, reconstruction and rehabilitation efforts in conflict environments with superficial attention on the extent of injuries incurred by victims of crises. The study examines the prospects of enduring peace, security (including human) and development through refining and reposing the custodianship of peace-building in the people through suitable reconciliation and rehabilitation. This research relied on primary and secondary sources of data. Data gathered from the field work was processed using the qualitative methods. The Liberal Structuralist Theory was adopted as the plank upon which this problem is driven. An intervention practice in post conflict peace building like social engineering is recommended.

KEY WORDS: *Conflicts, Peace, Peace-Building*



INTRODUCTION

The Nigerian society, especially the northern part has witnessed series of violent conflicts. These conflicts are not limited to northern Nigeria, however they are more endemic in the north; and they assume different dimensions. Most notable among the crises in the north are the Maitatsine uprisings in Kano and Kaduna in the early 1980s, especially the Kano metropolitan riot in October, 1982; the Yola crisis in 1984; the Bauchi crisis in 1985; the Ilorin riot in March, 1986; Kafanchan, Kaduna, Zaria and Funtua religious crises in March, 1987; the Kaduna Polytechnic riot in March, 1988; the Zangon-Kataf riot of May, 1992; the Jos crisis of April 1994 (Isichei, 1987; Enwerem, 1999) The latest and most violent conflict in Nigeria has been the Boko-Haram insurgency in the north east extending towards the north-west and north-central States of Nigeria, which purportedly began with the extra-judicial killing in 2009 of Muhammed Yusuf, the group leader. Amaraegbu (2013:66-70)

The north central states of Nigeria consisting of the states of Benue, Kogi, Kwara, Nasarawa, Niger and Plateau, as well as the Federal Capital Territory (FCT) have witnessed frequent violent conflicts in the form of herders-farmers conflicts with the attending devastation, though it does not preclude the existence of other forms of violence. (Aderinto & Achem, 2019) Herders-farmers conflict which is the mostly pronounced in the north central is an old time phenomenon. (Charwin, 1989 cited in Onuora & Nwaneri, 2018). The existence of herders-farmers conflict has also been given a theological origin in the Biblical accounts of Cain and Abel; Abraham and Lot; and Isaac and Gerar. (Onuora & Nwaneri, 2018:128) Herder/farmer conflict according to Blench, (2014) has existed since the beginnings of agriculture, due to increased herd sizes, increased overall population and the mounding pressure on arable land. Odoh & Chigozie, (2012) cited in Onuora & Nwaneri, (2018) have adduced the herders-farmers conflict to increasing desertification and drought, referred to as Eco-Violence. It is apparent that some of these crises also purportedly have their roots in Nigeria's multi-nationality and the attendant suspicion, fear and animosity. Others have their roots in the religious coloration given by participants and the actions or inaction, or the unsatisfactory response by government at the various levels. (Onuora & Nwaneri, 2018:130). They have resulted most frequently from indiscriminate grazing on farms crops, blockade of transhumance routes by farmers, rustling of herds and retaliatory

attacks. In this regard, the violence seems not to have an end in sight given that land resources do not expand and that these factors seem not to be waning in influence.

In the southern region, the most notable dimension is economic interests, resulting in criminal activities such as kidnapping, robbery, pipeline vandalism and piracy. Militancy in the Niger-Delta region was directed at the Nigerian government and oil exploration companies over ecological desecration tacitly towards achieving resource control. The agitation in the south can be traced to Isaac Boro's struggles as far back as 1966. (Boro, 1982; Asuni, 2009; International Crisis Group, 2009 cited in Jooji, 2018:73) When the option of military action against militants in the Niger-Delta region seemed not to be yielding positive results because of the loss of wealth of human and mineral resources, it was resolved by the government of former President Musa Yar'Adua to grant amnesty to repentant militants. However, a similar programme initiated by subsequent administrations for repentant terrorists in the north is heavily criticised by Nigerians basically because the crisis asymmetric, still rife and the victims of the crises are yet to be compensated adequately.

There are two types of conflict of particular concern in African development, according to Blench, (2004) they are socio-political and natural resource conflict. Natural resource conflict is which characterised conflicts in central Nigeria is more dispersed, and expectedly, government always intervened through the deployment of police and military personnel to quell attacks and reprisal attacks. However, it is usually occurring in inaccessible places at odd times, and according to Blench, (2014) most cases are unreported. Efforts in post-conflict environments by government and intervention entities focused reconciliation, rehabilitation, rebuilding and attending to the real and perceived sources of threat in order to forestall a recurrence. Early warnings have served to provide opportunities for timely intervention, yet justice seems not to be done even where seemingly genuine reconciliation is carried out.

Most post-conflict atmosphere remain charged, therefore peace is known to have lasted for a reasonably short period before a recurrence. This study finds the phenomenal reemergence of conflicts despite intervention by government through the use of force and the post-conflict programmes of reconciliation, rehabilitation and reconstruction as a problem, to the extent even the efforts of donor agencies and the laborious efforts of scholars could not provide a lasting



solution. The results of these efforts - where they exist - are inconsistent with the quantum of resources involved and successes achieved are provisional.

CONCEPTUAL CONSIDERATIONS

Conflicts

Conflict can be seen as a natural part of human life, (Weeks, 1992 cited in Faleti, 2016)) however, violent conflict is an anomaly. The bloodbath that followed the conflicts sometimes takes a genocidal dimension. (Daily Trust, 2016). The conflict sometimes assumed the posture of terrorism which can be described as those violent acts intended to cause panic, commit mass murder and are perpetrated for religious or ideological reasons, deliberately targeted at the vulnerable. Studies maintain that conflicts over resources can be settled to the satisfaction of warring parties, though conflicts over group or individual values may not easily be resolvable rather, it can be transformed or managed. Wilmot and Hocker (2011) described conflict as a felt struggle between two or more independent beliefs, over perceived incompatible differences in desire for esteem, control and connectedness. He says it must be people relating or depending on more another bound by certain social cords or nests.

To achieve any meaningful conflict resolution, it means that the deep-seated sources of conflict are addressed and resolved, and social behaviour once more is enhanced. Mitchel and Banks (1996) refer to conflict resolution as an outcome in which the issues in an existing conflict are satisfactorily dealt with through a solution that is mutually acceptable to the parties.

Peace/Peace-Building

Peace has been defined by Francis, (2016) as the situation of equity, development and access to existential necessities of life. Peace can be classified as negative or positive according to Galtung cited by Francis, (2016). These two forms of peace include the absence of direct violence, war, fear and conflict at all levels and the absence of unjust structures, unequal relationships, justice and inner peace at individual level. Peace-Building or conflict resolution otherwise known as conflict prevention is aimed at overcoming the root causes of conflicts and forestalling a recurrence. Conflict resolution according to Mitchell and Banks, (1996) connotes a sense of finality where the parties to a conflict are mutually satisfied with the outcome of a settlement and the conflict is resolved in a true sense. What is in question however is the acceptability of the peace-building process.

There are reasons for our choice to examine the north central and the peace building option. One of the reasons is to be able to discover variations in the form and features of the conflict relative to other parts of Nigeria. Part of the features that distinguish the conflict in north central Nigeria from others is its uniqueness as premised on the struggle for limited land, the ethnic and religious configuration of the north central and the complexity of the conflict due to its ancient origin and pervasive nature. Only genuine commitment from the government and the society can resolve this conflict because every participant seems to be justified for any actions taken, save the cattle rustlers.

Theoretical Overview

This study took a panoramic view of some of the existing scholarly explanations for the phenomenal surge in violent conflicts or terrorism. There may not be a steel line between the varying perceptions, however, in order to put the causes, the dynamics and the effects of conflicts in proper perspective and to proffer possible solutions to the identified problem, some theories become more suitable. There are two main schools of thought on factors that generate conflict in societies generally; these theories are classified into Radical Structuralism led by Marx, Engels and Lenin, and Liberal Structuralism led by Ross, Scarborough and Galtung. Faleti, (2016:41) These scholars believe in either external or internal roots of the factors that cause perennial conflicts.

The former school believes that the causes of conflict are rooted in the ways societies are structured. The elements are exclusion, injustice, poverty, disease and denial of rights also referred to as 'Relative Deprivation' by Ted Gurr, (1970) The core of hypotheses is that the correlation between people's socio economic expectations and the actual distribution of political and economic goods and services render conflict inevitable. Amaraegbu, (2013) Exploitation and inequities or stratification according to Marx, Engels, Lenin and Tse Tung are attributes of capitalism which are to blame for societal conflicts. The struggle for control and use of natural resources are equally said to be responsible for conflict situations. Neo-Marxists of the Underdevelopment and Dependency paradigms represented by Gunder Frank, Rodney, Amin and Wallerstein (referred to as Third World scholars) blame the outbreak of conflicts on the exploitation of the Third World by the few, rich and powerful developed nations. Other Radical Structuralists adduce conflicts to deprivation in one larger section of mankind and of overabundance and over production in another much



smaller section. It therefore explains the impact of foreign influence on internal violence. Kerbo's (1978:1) The Frustration-Aggression Theory of Dollard et al, (1939) which believes that when people are being prevented from achieving set goals, their frustration leads to aggression is akin to the Deprivation Theory. (www.tutor2u.net/psychology/reference)

Above views can be classified as paradigms under the two basic theories of International Relations which liken all State behaviours to the nature of man. Without belaboring their conceptions of man and how they generate crisis, it is pertinent to consider the Liberal Structuralist approach of Galtung, (1967) which enunciated the Theories of Negative Peace and Positive Peace as explanation for the prevalence of peace either through the use of brute force by the State or by mutual consent over norms, rules and values. One notable difference between the Radical Structuralists and the Liberal Structuralists is the means of elimination of these defects either through revolution or war, leading to the overthrow of the exploitative system, or through policy reforms respectively. (Faleti, 2016:42) The conjectures derivable from exploring the differences between negative peace and positive peace forms the platform upon which this study is being driven. Peace, like human rights is an entitlement of the citizens which in all ramifications are inherent in human nature. Peace becomes temporal and conflict is prevalent when these entitlements are denied to the people who suffer at both ends of the resulting conflict, through victimisation during conflicts and inadequate post-conflict intervention by the State. (Faleti, 2016) It goes that the root causes of conflicts and their recurrence are found in the attainment of peace through repression, which renders peace susceptible.

Apart from poverty, democracy is a passing phase in the nation and (probably) democracy provides a dual service, as a means for participation and hope in the system and as a tool for manipulating the will of the masses by the elites through personal freedom that are available to the privileged. Ethnicity and Religion influenced minority politics and agitations as much as indigeneship contribute greatly to political crises. (Bala, 2015) Others have blamed violent crises and terrorism in Nigeria on population bulge among the unemployed youth which inadvertently triggered the level of criminality and terrorism in Nigeria. (Peter, Amana & Mafuyai, 2018) This though arguably subjective; whether the youths are employable depends on the availability of properly skilled youths, which phenomenon is a function of the political and economic stay. The most populated countries with a higher youth

population hypothetically should have higher levels of crime.

Intervention Protocols

All interventions, whether in terms of military or the use of soft measures are philosophically premised on the obligations laid down in the United Nations Declaration on Human Rights 1948, the African Charter on Human and People's Rights, ECOWAS Protocol on Human and People's Rights and the Constitution of the Federal Republic of Nigeria, 1999 which provides for the dignity and the rights of every human being to life, liberty and respect for the security of persons. (www.un.org/universal-declaration-hum) ECOWAS protocol on free movement of persons and goods encouraged the movement of citizens, goods and services including cattle into the country. Following the pervasive herders-farmers clashes, a high level meeting of the Nigerian Government and the Ministers of Agriculture and Animal Resources from ECOWAS countries including Cameroun, Chad, Mauritania and the Central African Republic agreed on a protocol for promotion of peaceful cross-boundary transhumance in the year 2003.

Among other interventions is the United States Agency for International Development (USAID) funded the establishment of a grazing reserve at Wase in Plateau State in the year 1965, but it pulled out in 1995 and the programme came to a standstill. (Onuoha & Nwaneri, 2018) The National Economic Council at its meeting of October 23, 2014 attended by sixteen governors resolved to phase out open grazing and replace with modern ranches to be funded by the Central Bank of Nigeria (CBN). (Daily Trust, October 24, 2014) This programme has been widely criticised because of the cost implications and the limitedness of available lands. The programme according to Onuoha & Nwaneri (2018) has not proven to be really practicable or successful, for example in Tanzania where it was introduced in 1956.

THE IMPACTS AND CHALLENGES OF CONFLICTS

Apart from the elements of violent conflicts which makes peace building difficult and a recurrence of conflict a well nigh possibility, those forces that generate conflict in Nigeria have continued to frustrate or affect genuine peace building. In other to examine the prospects of peace building, we must ask germane questions regarding what happens to the unabated population expansion and the associated needs? What



happens to the static size of land in the north central zone of Nigeria? What happens to the desertification in the Sahel region that has continued to push inward migration of herders? What happens to the increasing poverty which has produced an army of frustrated youths and yielded them as ready tools for execution of violence? What should happen to the elites that have continued to deny the people access to stake in governance, and alternatively continued to hold the citizens to ransom through mis-governance and exploitation? What should happen to the corrupt officials who have access to public wealth or stealthily continued to siphon public resources by fanning the embers of ethnicity and religion to shield their activities from public consciousness? What happens to the economy of these conflicts which will continue to favour certain local and international entities?

For want of space, we wish to limit our illustration to one of the displacement tracking matrix reports from the World Bank and the National Bureau of Statistics. (Find attached Appendix 'A') It may not be adequately representative of all cases, yet it reflects some elements of the experiences among all other post-conflict environments. Generally, the conflicts and the spectre they leave behind in the north central include displacement, depopulation, destruction, and defoliation. Amongst the eight states of north central Nigeria affected by the crisis, Benue hosts the largest number of displaced individuals (81,132, or 26% of IDPs). Guma LGA, which is the LGA accommodating the most Internally Displaced Persons and is located in Benue state, alone hosts 48,558 IDPs (17% of IDPs) displacement in Benue state chiefly results from herdsman-farmer clashes. A number of IDPs also relocated to Benue from Nasarawa state. Plateau hosts 14,521 IDPs (5% of total IDPs). This population was displaced following hostilities between herdsman and farmers as well as communal clashes between religious communities. A vast majority of IDPs in the state (12,840 or 88%) reside in Barikin Ladi LGA. At the IDPs it is obvious that government attention is inadequate as the state of potable water, sanitation and hygiene is deplorable. There are evidences of open defecation since latrines and waste disposal system is equally disgusting. (dtm, NBS, 2019)

In line with studies in other conflict areas, Brinkerhoff has noted that 'some estimates say 50% of conflicts return within five years.' Victories won through the barrel of the gun are most times pyrrhic. The first challenge is that there is inadequacy of systematic data on the costs of providing and sustaining security services. There are challenges associated with

the cost of rehabilitation of the victims of terrorism and the sustainability of the post conflict period. Majority of people have suffered psychological trauma as a result of the insurgency and this may not seem to abate in view of government's inadequate attention especially at the IDPs including inadequate water supply, hygiene, sanitation, health care and education of the children. The truth however is that efficient and effective delivery of rehabilitation and reconstruction of the affected areas require investment in the soft components of counter-insurgency strategies which comes with financial implications for either the providers or beneficiaries. Baregu maintains that terrorism is a global phenomenon arising from global processes and therefore requires global cooperation to counter it effectively. He suggests a focus on the root causes that breed terrorism and not just applying military tools to tackle the symptom of terrorism.

Other major challenges include the ability of ascertaining the ambiance of post-conflict programmes and the success of such programmes. Women and children were cannon fodder for the execution of terrorist acts and a means of producing new generation of terrorists. Peace building in such areas where children born to terrorists are rescued and rehabilitated is threatened by the perception of such children to whom their mothers pass down accounts of how the government and probably the society killed their parents for the sake of fighting for what they believe. No amount of economic or social palliatives will be enough to eliminate their perception of government and the society. Government posture may be responsible for the accentuation of this belief; it is equally responsible for ensuring that the atmosphere of suspicion is doused.

FINDINGS

Incidences of conflict and violence in North Central Nigeria remained steady from 2013 to 2016; of all the reported cases, more than half of the conflict events (55%) were caused by disputes over access to land or resources. About 33% of conflict-affected households had at least one member displaced as a result; 34% of the events of conflict in North Central Nigeria were never reported to any authorities. Perpetrators of murder and other inhuman acts walk freely, without any punitive measures capable of serving as deterrent; thus would-be terrorists are encouraged. From 2016 up to the present, it has assumed a more lethal dimension following the purported infiltration by foreign mercenaries.



Households in North Central Nigeria are frequently displaced and receive no assistance following conflict events. It is notable that rules and codes in Nigeria are enormous to cater for breaches of the peace; the successive governments themselves have indulged in acts of perpetual denial to the citizens of their rights especially to existence and to dignity. The intervention of government and donor agencies have appeared commendable, however their support to communities at the grass roots is virtually invisible because of their concentration on urban centres for reason of access and visibility. (Blench, 2004; Rowland, Amana & Abuh, 2016)

A society that is deficient in the rate of educated population lacks the value orientation that counters stereotypic compliance with intervention programmes whether good or bad. This region is blessed with solid mineral and other natural resources, but these resources have not been properly identified and harnessed to boost investment prospects, re-engineer the economy of the region and Nigeria in general. People have not been empowered through access to education, improve self-realisation or awareness and encouraged popular participation in decision making in order to give hope to the people. However there seems to be a deliberate attempt to frustrate proper exploitation of resources in order to keep the masses in check. The former report, in particular, proposes to create a 'peace building commission' to fill the institutional gap created by a UN system originally designed to deal with interstate war, and in which peace building activities are conducted in a disparate and not always coherent fashion.

This study does not examine the challenges, dilemmas and details of the few recent post-conflict operations, rather take steps towards a critical look at the contemporary practice of peace building. We first examine the underpinnings of this practice, arguing that most recent post-conflict reconstruction and rehabilitation programmes have been conducted in an *ad hoc* and unsystematic way, with little critical self-reflection on the underlying assumptions or structural biases of peace building efforts. They rest upon an assumption that a sophisticated, yet still utopian, 'social engineering' approach could replace, or accelerate, a process of state formation that occurs rather more naturally. We then focus specifically on the connection, usually missing in the institutional practices of peace building and between security and development, in order to illustrate some of the structural biases of peace-building efforts. Since critical scholarship must

go beyond critique, we finally argue that a practical rethinking of existing practices and programmes can be catalysed by examining post-conflict challenges through the lens of human security. Finally, relying on Karl Popper's distinction between 'utopian' and 'piecemeal' social engineering, we conclude by outlining the central tenets of a critical approach to peace building.

RECOMMENDATIONS

There are various dimensions to government intervention which are focused on the quelling of the immediate conflict through the use of the military; addressing the root causes of violence and genuine post conflict peace-building with focus on evaluating the costs and losses incurred by actors and victims of violent conflicts. The national policy of intervention must target an elaborate programme of empowering the people. The poor are vulnerable and easy targets for cynical manipulation by the rich and desperate politicians.

Scholars like Awodola (2018) have recommended the introduction of Peace-Education and the Culture of Peace as a panacea for peaceful coexistence beginning with childhood development. Notably, peace as a culture can be cultivated over a long period through peer influence and formal education. Baregu notes that terrorism is a global phenomenon arising from global processes and therefore requires global cooperation to counter it effectively.

There is necessity to make a quest into the root cause(s) of conflicts or insurgency. Baregu suggests a focus on the root causes that breed terrorism and not just applying military tools to tackle the symptom of extreme violence. Earlier researches have opined that poverty remains the greatest contributor to human insecurity today. Poverty means limited access/choice, limited control over one's life, poor health, limited information, exposure to exploitation, almost no meaningful leisure, high anxiety and little expectation of change. It has therefore been recommended that empowerment programmes be embarked upon to help reconcile, reconstruct, rehabilitate and rebuild the areas destroyed by insurgency and related activities. This research will focus on genuine reconciliation and rebuilding process through the determination of the respective objectives of parties to the violence, whose approach is devoid of stereotypes that neglect variations in impulses of actors, the degree and dimension of injuries on victims. This research presents



a critical overview of contemporary practice of intervention which rests upon the assumption that a sophisticated social engineering can be used to accelerate the process of peace-building.

The missing link noted in this research is the fact that earlier programmes and researches have been conducted with critical reflection on the assumptions and bias that peace, security and development are intertwined and realisable through human security. There is yet a gap in identifying the peculiarity of cases towards specificities required in intervention through the establishment of perennial institutional framework for intervention to fill the institutional and finance gaps.

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Appendix 'A'

	North Central		South South			
North East	North Central		South South			
	Households (%)	Community members (%)	Households (%)	Community members (%)	Households (%)	Community members (%)
	49%	72%	25%	47%	22%	49%
Percent experiencing any conflict event						
Type of Event (Household/Community member ... since 2010)						
Killed	7.0%	34.0%	2.5%	15.0%	4.8%	24.0%
Physically attacked	5.0%	18.0%	2.8%	12.0%	3.5%	13.0%
Injured	5.4%	19.0%	1.5%	14.0%	3.0%	12.0%
Suffered sexual violence	0.0%	6.0%	0.0%	3.0%	0.0%	3.6%
Forced to work	0.9%	1.2%	0.0%	0.2%	0.0%	0.0%
Abducted	0.0%	7.2%	0.6%	8.0%	1.1%	13.0%
Robbed	12.0%	30.0%	6.0%	17.0%	2.4%	13.0%
Displaced	27.0%	30.0%	8.1%	7.0%	5.7%	11.0%
Dwelling robbed	22.0%	32.0%	5.5%	14.0%	6.4%	25.0%
Dwelling damaged	5.6%	20.0%	6.2%	9.7%	4.6%	11.0%
Land occupied	5.6%	9.7%	4.8%	9.1%	1.6%	6.3%
Assets destroyed	3.6%	11.0%	7.9%	10.0%	4.2%	7.0%
School access blocked	21.0%	26.0%	6.0%	7.2%	6.0%	8.4%
Health service access blocked	6.6%	11.0%	0.9%	1.4%	0.0%	1.1%

Source: World Bank, National Bureau of Statistics, Nigeria, Preliminary Draft Report, 2018



ESTABLISHMENT OF SOVIET POWER IN SAMARKAND AND THE BEGINNING OF THE ARMED MOVEMENT AGAINST IT

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ABSTRACT

This article describes the establishment of Soviet colonialism in Turkestan, including in the Samarkand region, the insidious policy of the Bolsheviks in the country and the emergence of an armed movement against the Soviet regime.

KEYWORDS: *the Bolsheviks, the Soviet government, Samarkand, the countryside, the locals, the Korboshi, “basmachilik”, the Red Army.*

INTRODUCTION

The Turkestan region, including the Samarkand region, had historical factors and serious reasons for the beginning of the armed independence movement in late February and early March 1918. This is primarily due to the fact that the 50-year-old colonial policy of the Russian Empire continued during the new Soviet era. The government of the Turkestan Autonomy in Kokand was violently abolished by the Red Guards and Armenian Dashnaks sent from Tashkent and Skobelev on February 19-22, 1918, and in early March 1918 the chairman of the Council of People’s Commissars of Turkestan. The bloodshed caused by Kolesov’s military attack on Bukhara left the local population frustrated with the Bolsheviks and the Soviet authorities.

METHODS

The armed independence movement against the Soviet regime in the Turkestan region began in the Ferghana Valley, or more precisely around Kokand [1.p.48-49]. Shortly afterwards, an

armed operation was launched in the Samarkand region against the Soviet government and its military units, the Red Guards and the Red Army. It is acknowledged in the works of almost all historians that the armed movement against the Soviet regime in Turkestan began with the overthrow of the Turkestan Autonomous Government. However, there were a number of other compelling reasons for the start of the armed movement. These were the ideas of the October Revolution of 1917, and the communist ideology promoted by the Bolsheviks and other macro-political forces that seized power by force as a result. The locals were unable to absorb the idea from the beginning and opposed it.

RESULTS AND DISCUSSIONS

From the earliest days of the new Soviet government, local people were not involved in governing, and their national pride and rights were denied. It was clear from those early days that the Soviet power established by the Bolsheviks in Turkestan was a new form of colonial policy of the



Russian Empire. From the earliest days of the new system, the traditions and national values of the indigenous peoples formed over the centuries have been consolidated. Sharia-based judges were abolished, waqf lands were confiscated, and all forms of property were banned [2. p.84-85].

The development and escalation of the armed movement against the Soviet regime in the Samarkand region was also strongly influenced by the specific colonial policy pursued by the Bolsheviks here. The locals were against the invaders and looters, as the Red Army fighters had shown themselves to be real looters and violent people as an invading army, and their life-and-death struggle intensified in Samarkand as well.

As a result of the colonial policy pursued by the Soviet authorities, the political and military situation in the Samarkand region worsened from the beginning of 1918. The armed movement against the Soviet regime, which began in the Turkestan region, has been widespread in the Samarkand region since the spring of 1918. The armed movement in Samarkand (during the Soviet era, this movement was incorrectly called the “Basmachilik” movement, the participants of which were called “Basmachis”) was led by such great Kurbashis as Achilbek and Bahrombek.

According to archival documents, Mirza Polvon, Haji Abdulkahhor, Mulla Karimjon, Islam were in Samarkand district and Urgut; Niyozbek (Mamur Niyozbek), Turobbek, Abdulhamidbek, Mulla Hamroqul in Jizzakh district; Kholbotabek, Saidmurod, Norkuzi, Masharif, Turdiboy, Tursunboy, Mulla Javlon, Muhammad Murod in Khojand district and Uratapa; In Kattakurgan district, Karakulbek and in Matcho, Ahmadbek and Asrorkhan led the struggle against the Soviet government and the Red Army units, which were the military forces of the Bolsheviks. The number of young men who fought against the Soviet regime in 1918 was 10,000, while in 1920 in the Samarkand region alone, 27,000 people fought against the Red Army [3. p.89-90].

The chauvinistic policies of the Soviet government, such as disregarding the local population, not involving them in government, the introduction of forced labor, the mobilization of local horses, the conscription of indigenous peoples into the Red Army, the grain monopoly and the distribution of food. As a result of the Bolshevik policy of “military communism”, as in the whole Turkestan region, in the Samarkand region, all peasants and artisans revolted against the Soviet government and the new Bolshevik order, and joined the ranks of patriots.

The leaders of the Turkestan ASSR were forced to admit this fact in time. For example, one of the archival documents of that period states: “We considered the local rich to be among the European bourgeoisie and arrested them, released them from prison only if they paid a certain amount of compensation ...

As for economic activities, we have declared “communes” in areas that are largely agricultural and handicraft. A well-known decree was issued to confiscate all the land and even the smallest handicraft enterprises, leaving many people unemployed and forced to buy a piece of bread. On top of that, in the early days of the revolution, many ginneries were closed, and in Ferghana, in fact, there was a very difficult situation in all areas, both economic, political and organizational. Naturally, all these cadres immediately joined the “invaders”.

It should also be noted that at the same time as these measures, we mobilized horses, introduced forced labor, mobilized people to the ranks of the Red Army. At the same time, we continued to implement measures such as the grain monopoly, the distribution of food, as a result of which all peasants and artisans revolted against the Soviet regime, the Soviet order sided with the “invaders”. It should be noted that in 1919–1920 in Ferghana there was not a bandit (robbery), but a popular uprising”[4. p.330-331].

Indeed, in 1918 a popular uprising against the Soviet regime began in the entire Turkestan region, including Samarkand region. This movement intensified in 1919–1920 and extended beyond the Turkestan ASSR to Bukhara and Khorezm. The movement was politically motivated from the outset and was never a bandit or “oppressive” movement. At the same time, the lack of order in the local Soviet offices in Samarkand region, and the disregard for the will of the people, intensified the dissatisfaction of the local population. Representatives of the people - peasants, artisans, merchants, clergy, intellectuals - began to side with the independence fighters against the Soviet regime. The movement was politically motivated from the outset and was never a bandit or “oppressive” movement.

The Chairman of the Council of People’s Commissars of the Turkestan ASSR, Kaygisiz Atabayev, made a special report on “Printing” at the 5th session of the Fourth Plenum of the Central Executive Committee of Turkestan on July 18, 1922. “Comrades! Printing is a great reproach in all our affairs in Turkestan, and perhaps in the whole East. So, what explains not only the end of the printing press for 4 years, but also its outbreak in Ferghana, which spread to neighboring regions and covered the



entire Samarkand region with a part of Surkhandarya and Turkmenistan provinces? This is explained by the fact that all our work for 4 years was completely contrary to the way of life, customs and traditions of the local population formed over the centuries. Our inability to deal with the situation is a common disease of all of us: as long as we are leaders to one degree or another, this disease has put us in a very difficult position in the eyes of neighboring countries”[5. p.325].

In his speech K. Otaboev said that the anti-Soviet movement was not a banditry, hooliganism or “oppression” movement of a group of people, but a popular uprising against the Bolsheviks, but that Soviet leaders and the Red Army command, the party and the economic leadership were always wrong. “We didn’t even know how to properly assess this movement for 4 years, when it was a popular uprising, we called it ‘repression’. Printing essentially means looting, and our misinterpretation of this action has led to misguided approaches to solving the problem. And finally in 4 years we have not been able to finish any aspect of this movement.

The Soviet government wanted to end the “repression” movement with both fire and sword at the same time. To this end, large and small villages “poisoned by oppression” were ruthlessly destroyed by the Red Army, and their population became increasingly distant from Soviet rule [6. p.72-78].

The tactics of the Soviet government and the Red Army Command against the independenceists were carried out in disgusting ways. The chairman of the Council of People’s Commissars of the Turkestan ASSR acknowledged that the policy of punishment against the insurgents was regular. The hostage-taking experience also lasted much longer. So many people are taken hostage that there is no place to imprison them. Even the mass shooting of hostages will not stop the “oppression” movement. Soon there will be no local officials, ie Muslim communists, who are not suspected of links with the “invaders” [7. p.333-334].

The main driving force of the armed movement in the Samarkand region were farmers, charikors, laborers, artisans and craftsmen. According to one of the leaders of the Turkestan ASSR, farmers and artisans took part in the armed movement [8.p.375]. They were joined by the majority of the city's population: representatives of wealthy families, merchants, mullahs and eshons, kalandars, and some rich people who were Islamic figures. In the ranks of the independents, the educated people who understood black and white were also the majority, and they were many Jadids

who were the leading representatives of the Turkestan progressives [1. p.34].

The fighting tactics of the patriots fighting the Red Army were also peculiar. There were many leaders in their ranks who were well acquainted with the local conditions, who knew in advance the conditions of the future battle: the number of Red Army soldiers, the type and number of their weapons, the methods of attack or retreat - all carefully studied in advance. Historical documents from the time testify that the insurgents’ intelligence worked brilliantly, “and in battles, in most cases, the invaders, supported by the local population, would win”. Because of their familiarity with the local conditions, they moved freely in courtyards and gardens, behind the walls of villages, in neighborhoods and guzars, in mountains and deserts, and in ravines that were difficult for people to reach. Such methods of struggle of the Kurdish groups made it difficult for the Soviet army to carry out military operations against them.

The works of Mirza Salimbek, Muhammad Ali Baljuvani, Ahmadkhan ibn Ismailkhan and others, a number of local historians who lived in the 1920s and 1930s, spoke of patriots who fought for the freedom of the homeland, as well as a group of criminals who committed theft and robbery. These thieves, too, armed with rifles, formed small armed groups and plundered and killed the population.

When talking about the essence and main driving forces of the independence movement in Turkestan, it is necessary to clarify another key issue. Military groups led by the Kurds fought against the enemy for political purposes. But at that time, in 1917-1924, there were various criminal groups, thieves and robbers in the region, including Samarkand region, who were engaged in looting and violence. It is illogical and illiterate to interpret such an armed movement as “oppressive” by placing such thieves and robbers as having nothing to do with the Kurdish groups fighting the Soviet regime, putting them on a par with the independence fighters.

The works of Mirza Salimbek, Muhammad Ali Baljuvani, Ahmadkhan ibn Ismailkhan and others, a number of local historians who lived in the 1920s and 1930s, spoke of patriots who fought for the freedom of the homeland, as well as a group of criminals who committed theft and robbery. These thieves, too, armed with rifles, formed small armed groups and plundered and killed the population. For example, Ahmadkhan ibn Ismailkhan from Samarkand (1873-1924) in his work “Tazkiratul Inqilob” contains information about the people who stole in and around Samarkand in 1917-1918 in the



third book of the pamphlet “Statement of vandalism, murder and robbery during the Mensheviks”.

In addition to the armed struggle, there were many protests against Soviet rule. Representatives of the people rallied against the Soviet government at the rallies. On May 28, 1918, in the village of Payshanbe, Kattakurgan district, Samarkand region, the Bolsheviks organized a rally in support of the Soviet government, gathering supporters of the new regime. However, at the rally in Kattakurgan district, anti-Soviet forces formed the majority, and these forces made various speeches at the rally organized by the Bolsheviks and dispersed the crowd [9. p.46-47].

It is known from history that on September 14, 1918, the Supreme Revolutionary Tribunal was established under the MIC of the Turkestan ASSR. Revolutionary tribunals decided the case in favor of the Soviet government in any case. It was not possible to appeal against the verdict of the tribunals, which also had unlimited powers in the application of punishment. In 1919, the Samarkand Regional Revolutionary Tribunal and its branches in the districts and cities were established. “Enemies of the revolution” were shot by the tribunal without investigation and trial. Emergency “troika” groups (troikas) were also formed, which were also given broad powers. Despite the repressive policy of the Soviet authorities, the independence movement in the Samarkand region reached its peak in the spring of 1919. As a result of the attacks of the young men led by Achilbek Korboshi in the region, the Soviet power was terminated from the Zarafshan oasis to the Turkestan and Zarafshan mountain ranges. The territory of the former Matcho principality (center - the village of Oburdon) of the Bukhara Emirate was part of the Samarkand region at that time, where the Red Army frequently conducted raids to establish the Soviet regime. According to the report “Report on the events of August 1918 in Samarkand region” [10.p.56-65], in May-August 1918 in Jizzakh district in dozens of villages and auls in Koktepa and Jausugum volosts, in Kattakurgan district Kalakurgan and Samarkandak volosts In many villages in the Shahob and Chashmaib volosts of the district, there were various clashes between a “gang of robbers” and representatives of the Soviet authorities [10. p.57-58]. The term “gang of robbers” refers to patriots fighting the Red Army.

On February 2, 1920, the Central Executive Committee of the Soviets of the Turkestan ASSR adopted the Regulations on Revolutionary Tribunals, on February 5, the Provisional Regulations on Regional Revolutionary Committees, and on April

10, 1920, on the Establishment of Regional Extraordinary Commissars. begins to punish ruthlessly.

According to the Statute of Revolutionary Tribunals, revolutionary tribunals can defend the victories of the October Revolution and sentence all those who oppose these achievements to death with any punishment, even the death penalty. According to the charter, regional tribunals were soon established in all oblasts of the Turkestan ASSR, except Tashkent, including Samarkand. The oblast tribunal consisted of a chairman and two members, who were to be appointed by the oblast executive committee or oblast congresses [11.p.1]. It was through these tribunals that the Bolsheviks punished tens of thousands of people in the Samarkand region.

The special troika that worked during this period also brutally punished people. This is evidenced by many archival documents and other sources. For example, in the archive document “Fight against tyranny” there is information about the people killed by the troika.

Shortly before the establishment of revolutionary tribunals and troikas, in March 1918, the “Temporary Regulations on the Establishment of the Workers and Peasants Red Army in Turkestan” were drafted. National units of the Red Army will also be formed on the basis of the charter. A special unit for Muslim Red soldiers in the Red Army was formed in all military units under the leadership of a political leader. Political leaders were appointed by the regional branches of the Bolshevik Party and the Turkestan Provincial Muslim Bureau. In March-September 1918, a Muslim battalion, a cavalry team, the Tashkent cavalry party squadron, the 1st cavalry artillery route and others were formed in Tashkent.

CONCLUSION

In short, the armed movement against the Soviet regime in the Samarkand region began in the spring and summer of 1918. Dozens of armed groups led by the Kurds waged a liberation struggle against the Red Guards and the Red Army. Although large-scale operations and battles were not observed in 1918-1919, the first stage of the struggle, the armed movement did not cease. The struggle for independence was led by dozens of Korboshis from all major villages and towns of Samarkand. The independence movement in Samarkand was led by such great Kurbashis as Ochilbek and Bahrombek, who fought fiercely against the Red Army of the Turkestan Front and other Soviet military forces in 1918-1919. By this time, the initial phase of the armed movement was over. But the fighting against the Red Army continued later.



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THE ACHIEVEMENTS OF GAFUR GULYAM AS TRANSLATOR

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ANNOTATION

This article describes the main life events and work directions of the Uzbek poet and publicist Gafur Gulyam. Attention is paid to the activities of Gafur Gulyam as a translator, authors and works translated by the poet.

KEYWORDS: *Gafur Gulyam, poet, poem, translation.*

DISCUSSION

Gafur Gulyam was born on May 10th 1903 in Tashkent. The family lived in the mahalla (quarter) of Kurgan-Tagi in the Sheikhtaur part of the "Old City". "Old" - means populated by local residents, numbering many centuries of existence, in contrast to the "new", which appeared at the end of the last century.

Gafur Gulyam's childhood passed in an environment imbued with literary interests, which to a large extent predetermined his spiritual disposition and future aspirations. It is not surprising that the boy, barely reaching the age of ten, mastered the diploma so much that he freely read the classics of eastern poetry - Navoi, Hafiz, Saadi. It should be noted that in general in large cities of that time, in an environment of some kind of wealth, the literacy rate was traditionally relatively high.

During those years, from 1912 to the first post-revolutionary ones, turned out to be the most painful and gloomy in the life of Gafur Gulyam [1]. He tried to study - first at the maktab (lower Muslim school), then at the Russian-native school.

One of the earliest Gulyam's poems is "What is beauty? It was written at in 1923, it was published in a teacher's magazine. By this the path to literature has been paved. Following Gafur Gulyam's poems appear in print one after another. At this time, he was a regular employee of newspapers and magazines in Samarkand (then capital of Uzbekistan), then in Tashkent, and in Fergana [5]. These years were also a period of intense literary study with the masters of the word - not only Uzbek,

Tatar, but primarily among the Russians, whose works Gafur Gulyam learned and loved in childhood. He always called Gorky and Mayakovsky his main, beloved teachers, who influenced on his work greatly [4]. From an attentive reading of poetry and prose by Russian authors, Gafur Gulyam naturally switched to translating them into his native language. And this, as for many and many of his colleagues, who stood at the source of national Soviet literature, was an excellent school of literary skill, and a high example of writing service to the people, the embodiment of advanced universal human ideals.

The results of hard, fruitful work were not slow to affect. In 1931, the first collection of verses by Gafur Gulyam under the title *Dynamo*, characteristic of the time, was published a year later, the second, *Live Songs*. Of the poems conceived and created by the author in the 30s, the first - "*Kukan*" - was published in 1934. A little earlier in the periodical press began to appear translations of his poems into Russian.

For the poet the 30s were full of tireless and diverse work in various genres of literary art. Remaining the author of poems and verses, he increasingly turns to prose and dramaturgy; being still active in journalism, he significantly expands the range of translation activities - translates not only from Russian and through Russian, but also from the languages of fraternal peoples [3]. As a young man, he drives a lot, more often - outside of Uzbekistan.

The achievements of Gafur Gulyam as translator of prose and poetry are truly grandiose, first of all, in quantitative terms. Only a list of



authors and works translated by him can already present the breadth of their range. A thorough analysis of this side of the poet's activity, fruitful and highly talented, has not yet been carried out. It is important to note that Gafur Gulyam translated mostly from the Russian language, and among the authors he translated, Mayakovsky and Gorky are in the first place. The poet pointed out with particular pride that he owned the first Uzbek translations of The Petrel («Буревестника») and Song of the Falcon – «Песня о соколе». With great success, he also translated many works of Pushkin and Lermontov.

Following the autobiographical notes of Gafur Gulyam himself, we list the languages from which he translated. In addition to Russian, it was Ukrainian (poems by Shevchenko), Georgian (poems by Rustaveli, verses by G. Leonidze), Tajik (Abulkasym Lahuti), Azerbaijani, Tatar, Turkmen, Persian [2].

It remains to add that the poet translated extremely many works of different genres, various foreign literature from Russian publications, more precisely through Russian (the practice of such translations, from an intermediary language, is quite common and gives positive results, determined, however, as always, by the degree of the translator's literary talent). Again, only a list of authors translated by Gafur Ghulam is very expressive: Johannes Becher, Antal Hidas, Amy Xiao, Langston Hughes. The great playwrights of the West should be mentioned here – William Shakespeare, Lope de Vega, Pierre-Augustin Caron de Beaumarchais. This list is not complete, as the poet himself pointed out. One of the outstanding achievements of Gafur Gulyam in this area is considered to be his translation of Shakespeare's "King Lear" [6].

The formation of the worldview and artistic taste of Gafur Gulyam was greatly influenced by the works of Vladimir Mayakovsky. In one of the articles, Gafur Gulyam wrote: "I ... know and love Russian classics and translated a lot of their works into my native language. But most of all I want to call myself a pupil of Mayakovsky," who "opened up for me the most diverse and inexhaustible possibilities in areas of rhythm, vocabulary, image, sound structure of the verse. In addition to the angry, scourging irony in satire, the tremendously huge power of feeling in Mayakovsky's lyrics, I tried to absorb ... all the courageous oratory power of his rhythms, intonations, courage of metaphors, expressiveness of hyperbole. Even the breakdown of the verse, increasing its rhythmic, intonational and semantic expressiveness, I managed to apply in the Uzbek versification. "This is confirmed by many works of Gafur Ghulam, for example: "On the paths of Turksib" (На путях Турксиба), "Native land"

(Родная земля), "Long live the world!" (Да здравствует мир!).

Gafur Gulyam passed away on July 10, 1966, having barely crossed his sixty-three year old line. These were difficult days - Tashkent was still shaken by the tremors of the earthquake that erupted in the spring, which became a disaster for the city and thousands of its inhabitants. The poet, overcoming a fatal ailment that was already approaching, tirelessly addressed fellow citizens with words of encouragement. Not only from the pages of newspapers or on the radio, he walked around the ruined city, supporting the injured friends or just the first people they met with a friendly word. In these bitter moments, many were helped by the poet's warm participation, his indestructible optimism, his inexhaustible humor.

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DESIGN, CONSTRUCTION AND EVALUATION OF GROUNDNUT SHELLING MACHINE PEDAL OPERATED

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ABSTRACT

Shelling is the removal of grains from their stalk or pod by stripping, impact action, rubbing or any combination of these methods. The most popular method of shelling which is still widely used in the northern part of Nigeria is the method of crushing or pressing the pods between the thumb and the finger to break off the pods and release the seed. This method has low efficiency, it is time consuming, and has high demand of energy. In addition, the output per-man hour is as low as 1-2.5kg of groundnut. There are different methods of shelling and different machines have been fabricated and used to shell wide variety of crops under different condition. The peasant farmer cannot afford these machines because they are too costly and complex in operation and maintenance. Also the operator had to be trained and spare parts imported. These factors increase the overall cost of production which does not make any economic sense to the farmer which necessitated the need for designing, construction and evaluation of a groundnut shelling machine pedal operated. Materials for the design include shaft, chain, sprocket, bearing, Sheller bit and columns. The product to be shelled is fed through the hopper which falls into the shelling chamber which is powered by pedaling by means of chain and sprocket connections. The concave forms the base of the crushing chamber which allow the ground nut to move in between the Sheller bit and the concave where they will be shelled falling through the perforation on the groundnut concave which has higher production output and easy to maintain.

KEYWORDS:- *Groundnut, shelling machine pedal operated*

INTRODUCTION

Groundnut is the sixth most important oilseed crop in the world. It contains 48-50% oil and 26-28% protein, and is a rich source of dietary fiber, minerals and vitamins. It grows best on soils that are well drained, loosely textured and well supplied with calcium, potassium and phosphorous. Over 100 countries worldwide grow groundnut. Developing countries constitute 97% of the global area and 94% of

the global production of this crop. The production of groundnut is concentrated in Asia and Africa (56% and 40% of the global area and 68% and 25% of the global production, (Acharya, 1990). Over 60% of global groundnut production is crushed for extraction of oil for edible and industrial uses while 40% is consumed in food uses and other "such as seed for sowing in the next season crop" (Birthal, Nigam, Narayanan and Kareen, 2011). Groundnut haulms constitute nutrition



fodder for livestock, they contain protein (8-15%) lipids (1-3%) mineral (9-17%) and carbohydrate (38-40%) at level higher than cereal fodder. The digestibility of nutrients in the groundnut haulm is around 53% and that of crude protein is 88% when feed to cattle. Haulms release energy up to 2337 Cal Kg⁻¹ of dry matter. Being a legume crop, groundnut help in improving soil health and fertility by leaving behind Nitrogen (N₂) and organic matter in the soil. (Pasupaleti, Nigam, and Rajeev, 2013)

Shelling is the removal of grains from their stalk, pod or cub, either by stripping, impact action and rubbing or any combination of these methods. Kulbhushan, Nitin, and Abhijit, (2017) in their research paper it is reported that based on the shelling action they can be divided into two categories. Hand operated and pedal operated, hand operated groundnut decorticator 50-75Kg per hour capacity was evaluated, whereas a pedal operated groundnut decorticator was found to have capacity of 75Kg/hour.

The most popular method of shelling which is still widely used in the northern part of Nigeria is the method of crushing or pressing the pods between the thumb and the finger to break off the pods and release the seed. This method has low efficiency, it is time consuming, and has high demand of energy. In addition, the output per-man hour is as low as 1-2.5kg of groundnut. There are different methods of shelling and different machines have been fabricated and used to shell wide variety of crops under different conditions (Ebunilo, Orhorhoro, Oviurunraye, and Owunna, 2016). The peasant farmer cannot afford these machines because they are too costly and complex in operation and maintenance. Also the operator had to be trained and spare parts imported. These factors increase the overall cost of production which does not make any economic sense to the farmer. Hand operated shelling machine which is of concave or semi-rotary design is widely used locally. It had no expelling unit; hence separation is achieved by winnowing. A simple hand operated groundnut Sheller has a semi-cylindrical screen closed on both sides. A shaft carrying a lever at one end is fixed across the centre of the semi-cylinder. On the lever is a pair of plate with shoes or beater bars, having blunts on their undersides. For successful operation of the machine, the operator stands by the side, then holding the operating lever (handle) and swinging it by pushing to and fro to provide shelling action on the shoes assembly. The semi-rotary, action of the shoes shells the pods against the screen. The

major short coming of this machine is that it is labor intensive and consumes lots of time. Output is about 60-80kg/hour. This particular design overcomes all those short comings and also has an improved efficiency. It comprises the hopper, crushing chamber, separation chamber and the blower unit. It is also powered by pedaling, which saves time and with a well improved shelling capacity. The machine is also in light weight and easy to operate and maintain, the spare parts are also available locally Ugwuoke et-al (2014). In the beginning the nuts were separate from shell by workers. The hand method by opening the pod up and groundnut is removed from it, the method is very slow and it was also boring and production rate is in small quantity, and also the traditional method of separating nuts from groundnuts by putting the peanut in a cloth bag and rolling over it with a rolling pin, the technique did good job of cracking the shell (deleting the pain full finger problem). This is not a reliable method for shell a groundnut due to the crack the groundnut and nut mixed with shell basic on this the traditional method is not a sufficient method for separating the groundnut. The researchers identify some major problem and to overcome this problem, in views of this research it develops and evaluate groundnut shelling machine pedal operated. The research objectives include to:-

- To design and construct a simple groundnut shelling machine pedal operated
- To design adjustable shelling bit
- To reduce the fatigue involve during operation of the machine
- A machine which easy to operate and maintain.

Sheller's are generally machine used for the removing of shells (husk) of groundnut, bean, and cowpea e.t.c by opening their bivalves. The groundnut Sheller is a machine designed specifically for shelling groundnut from its shells.

Ugwuoke et-al (2014). Their work focused on the design and fabrication of a groundnut shelling and separating machine electrically powered by a 1hp motor. The machine has a capacity of shelling 400kg of groundnut per hour with shelling and separating efficiencies of 95.75 percent respectively. The machine is cheaper to maintain. It is also light weight and comprises of the hopper, crushing chambers, separation chambers and the blower unit, but required a trained labour.



Handa et-al (2014) Design and fabrication of a groundnut Sheller machine, the performance of the machine was evaluated in terms of through shelling efficiency, material efficiently and mechanical change. Anantachar et-al (1997) Development and performance evaluation of pedal operated decorticator. The major component of the decorticator is Sheller shaft, sieve, decortications chambers, hopper, and supporting frame of a pedal operated device.

Mathew John (1992) In Nigeria a student of federal university of technology in Adamawa state fabricates the manually operated fabricated in 1992. Sanusi Abubakar (2012) made two improvements on the machine, to reduce the fatigue and difficulty in using the manually conventional type by employing the use of electric motor or diesel engine as the power source.

METHODOLOGY

Materials for the design and construction of the modified groundnut Shelling machine were the shaft, the chain sprocket, and bearing. Sheller bit, the columns. The material were locally purchased and they are selected based on the power required for the groundnut Shelling machine. In order to achieve high efficiency reliability and cheap method of producing the shelling machine, the researcher take into consideration the principles of operation of the machine, convenience of operation rate of shelling to meet commercial needs ease of manufacturer of the machine among others. In this research the vertical is replaced by a pedaling system which was peddled by an operator as it obtains in a bicycle. The Sheller unit is bolted down and can be dismantled for service by loosening the bolts which holds down bearing house.

The following parameter were calculated using the standard formula as given below by Nagesh, Mohan, Dhanush, and kiran, (2018).

$$\text{Shelling Capacity, } Sc = \frac{60Ws}{T}$$

Where Sc = shelling capacity, Kg/h

Ws = Weight of shelled groundnut, Kg

T = Operating time, Minute.

$$\text{Breakage Percentage, } Br = \frac{Wb}{Ws} \times 100$$

Where Br = breakage percentage

Wb = Weight of broken groundnut, Kg

Ws = Weight of shelled groundnut, Kg

$$\text{Unshelled groundnut, } Ung = \frac{Wng}{Wg} \times 100$$

Where Ung = Unshelled groundnut, %

Wng = Weight of unshelled groundnut,

Kg

Wg = Weight of total feed, Kg

$$\text{Separation efficiency, } Es = 1 - \frac{Wu}{Wt} \times 100$$

Where Wu = weight of unshelled groundnut,

Kg

Wt = total weight of groundnut feed in the machine, Kg.

Design Parameters

The researchers put into consideration parts of the groundnut Sheller machine which includes the following: -

Chain

To eliminate the use of large diameter gear on this machine chain is then used. They can either be block chain, roller chain or inverter troth, sometimes celled silent chain and each is suitable for different types of operations. The researchers make use of the roller types of chain because is rugged and durable and if properly selected installed and lubricated it give a very good service.

Sprocket

This involve the use of bicycle sprocket to provide the power, it was a simple task to attach the bicycle sprocket to a platform where the operator sits on the platform and pedal, which in turn powered the sprocket B. And it is cheaply found in local market and for this reason it is selected for the machine. The choice of sprocket and the chain is based on power take off.

Sheller Bit

It is made up of wood and steel fixed to a rotating shaft, as it rotates. It creates a pressure there by shelling the groundnut seeds on the groundnut concave where both the shells and the groundnut seeds comes out from it.

Bearing

The shaft is supported by ball bearing which are located inside the bearing housing and bolted to the mainframe. The ball bearing has the following advantage.

- ❖ Low coefficient of friction
- ❖ Have less axial space.
- ❖ Lubrication is simple
- ❖ Wear is negligible if lubricant is correct

**Columns**

They are vertical supports that carry machine or structures. They can be made up of wood, metal, or concrete. But in this research, the researchers make use of metal.

Design Analyses

The various dimensions of the machine have to be determined for the successful operation of the machine. The important parameter includes: -

Shafts

For solid shaft as in the groundnut shelling machine the required shaft size is given by

$$S_s = 16Mt/\pi d^3 \text{ ----- (1)}$$

Where: - S_s = Shear stress 4000N/m² for shaft with key ways.

M_t = Tensional moment.

D = shaft diameter

but the tensional moment acting on shaft can be determined from $M_t = 9550Kw/rpm$ and the power produced by a normal human is 50w. Also the average number of revolution per minute is 15.

Angle of Twist (θ) = $584M_tL/Gd^4$

Where: - G = Tensional modulus of elasticity N/m.

θ = Angle of twist (degree).

L = shaft length (m).

D = shaft diameter (m).

Sprockets

To determine the pitch diameter of the bigger and smaller sprocket is given by: -

Bigger $D_1 = P/\sin(180/T_1)$

Smaller $D_2 = p/\sin(180/T_2)$

Where: - D = diameter of the sprockets.

P = pitch diameter 1.24 standard.

T = Number of teeth.

Speed Ratio for two Sprockets is given by

$$U = T_1/T_2$$

Chain The length of the chain is given by

$$L = P(2c/p) + N_1 + N_2/2 + (N_2 - N_1)^2 / NT\pi^2 (c/p)$$

Where: - L = length of the chain

P = chain pitch

N_1 = number of teeth on smaller Sprocket

N_2 = number of teeth on the larger Sprocket

Volume of the Sheller

The volume of the Sheller is given by

$$V_0 = V_1 - V_2$$

But V_1 = Volume of the drum containing

$$V_1 = \pi r_1^2 L_1$$

Similarly, V_2 = Volume of the shelling drum is given as

$$V_2 = \pi r_2^2 L_2$$

Where: - d_1 = diameter of the drum

d_2 = diameter of the shelling drum

r_1 = radius of the drum

r_2 = radius of the shelling drum

L_1 = length of the drum

L_2 = length of the shelling drum

The Volume of the Shelling Unit is given by

$$V_0 = V_1 - V_2$$

Assembly of the Machine

In this research the hopper was welded to the shelling unit casing, and the discharge unit were also being welded to the shelling unit at the bottom side which covers the groundnut concave as intended to. The shelling unit which carries the hopper and the discharge unit was mounted into the frame and were bolted to the frame. And the transmission shaft passes through the horizontally inserted or place inside the shelling unit casing. two bearings were fitted into the two bearing housing and the two bearing were welded permanently into the two bearing housing case which was inserted into transmission shaft from both ends and bolted to the drum casing.

Chain sprockets were fitted to the shaft, thus the smaller one on the shaft, while the bigger one was placed under the operator seat as it is with the bicycle, also the handless and seat were also fitted into the mainframe by bolt and nuts.

Operation of the Machine

The product to be shelled is fed through the hopper which falls into the shelling chamber. The machine is powered by the operator by means of pedaling which is transmitted through the chain and sprockets connection. The concave forms the base of the crushing chamber enable the groundnut to move in between the Sheller bit and the concave where the shelled groundnut fall through the perforation in the groundnut concave.

CONCLUSION

The groundnut shelling machine has been designed and developed, performance test was conducted on the machine. There are several numbers of important conclusion that have been observed: -

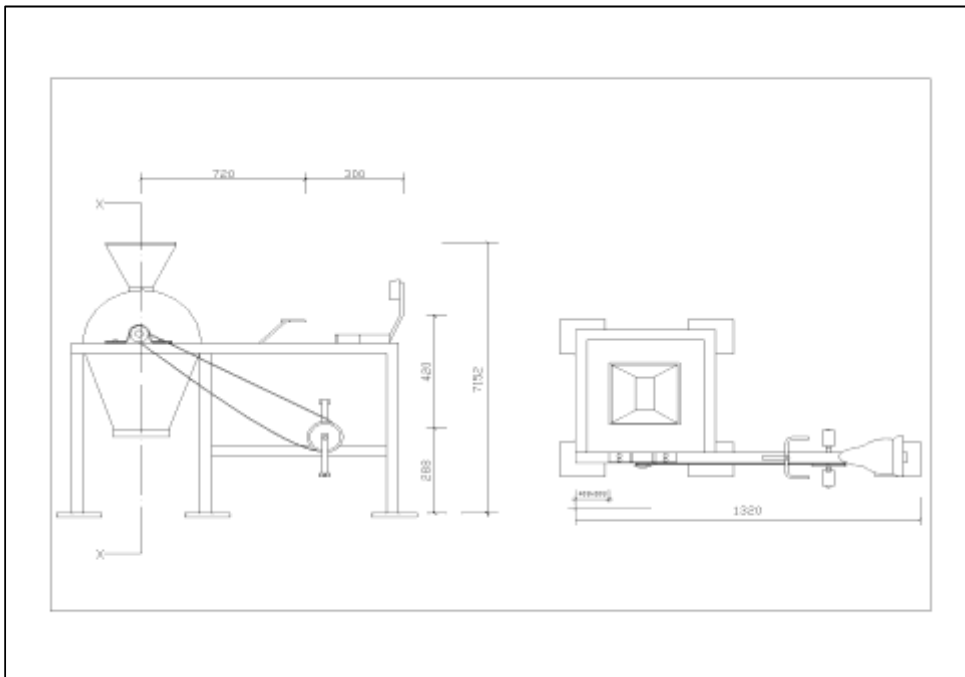
1. The operation was performed automatically and did not require high skilled labour

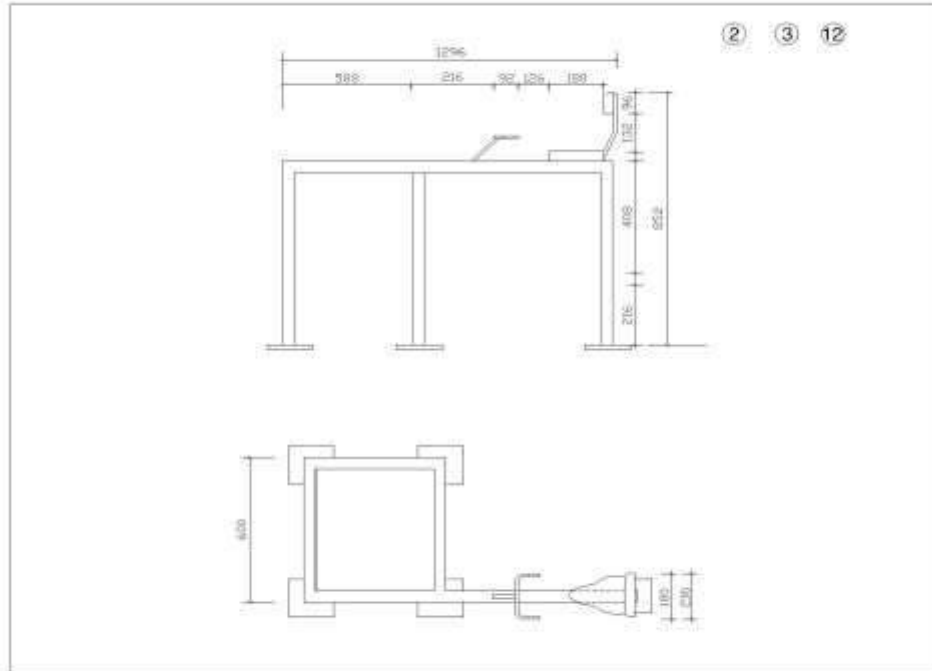


2. It can be used for both household and industrial purposes
3. Government and private sector as well as individuals should engage and encourage the design of this machine, as well as mass production of this type, so

that farmers in rural areas can easily get it within their reached.

Working Drawing







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DISPARITY IN LPD BY OPTIMIZATION OF DAYLIGHT & ARTIFICIAL LIGHT IN EAST & WEST CLIMATE ZONE OF INDIA

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ABSTRACT

Concerns about global warming are increasing, hence, the urgency to cut carbon emissions. Reducing energy consumption, including lighting energy, is seen as the primary solution. Yet, solving the environmental factor should not come at the cost of other pillars of sustainable development. Rather, maximizing the total value of the building should be the focus. Maximizing value in the context of lighting entails improving the quality of the lighting. This study has investigated how daylighting and artificial light simulation could help in achieving better lighting quality. In this paper the effect on the annual artificial lighting demand is investigated by employing detailed simulations of lighting conditions in office rooms lit by daylight and artificial. The detailed simulations includes studies of the resolution of Hot & Dry and warm & humid weather data sets in climate-based daylight modeling. Finally, explore the impact of longitude line angle on Lux level and also comparatively study of daylight Lux level availability within the building in different time slot in Hot & Dry and warm & humid climate zone of India and compare with required Lux level according to NBC norms for particular space. Also compare and optimize artificial light Lux level to available daylight Lux inside the building. By this study conclude that luminance requirement in a particular space type. The intent of this study is to justify whether the space wise LPD is the right approach to achieve proper energy efficiency and work plane sustainability and define the luminance requirement per sq. ft.

INTRODUCTION

Now a days the challenge or task for engineers and architecture to reduce the energy consumption of commercial building without compromising the building feature, envelop [1]. By the developing country like USA, CHINA and UK, start many study to reduce the energy consumption in building, and many technology are adopt to improve building efficiency and lightning [2,3]. By the present day technology, and

proper energy utilization, building energy efficient can be optimized. By the study of building in different climate zone conclude that to adopt the optimization of daylight and artificial light system by according to each than climate zone than we can save the energy [4,5]. To change building equipment and construction strategy can achieve the energy efficiency also reduce the peak load demand and adopt the peak load saving [6]. If construct the sustainable building than more than 30%



energy can be saved. To move toward sustainable in commercial building optimize the building envelop, HVAC, and lightning [7, 8]. Proper applying day lightning system, and artificial lightning integration system 35% of lightning load can be reduced and 13% of overall energy consumption are reduced. The electrical energy used to power lights can easily be reduced by eliminating unwanted electrical fixtures [9, 10]. Simple modifications of lighting systems can greatly reduce the energy used while still providing quality and illumination needed for various purposes [11, 12]. The simulation tools for the building that are used early that reduced the energy demand of new constructed building. [13].

METHODOLOGY

It is a experimental based case study of office building having surface area 350sq. ft. this study focus the optimization of artificial light and daylight by the simulation on Dilux Evo 8.2 and eQUEST software and reducing the LPD (lightning power density). According to experimental procedure firstly calculate the daylight availability inside the building on work plane height at

working office time between 10:00Am to 5:00Pm in Hot & Dry and Warm & Humid climate zone. Compare the available lux with the NBC lux level benchmark for particular space type. Now two condition are occur for annually lightning consumption

1. If the available daylight lux below the NBC (350 lux) benchmark lux than need artificial light than adopt artificial light and calculate annually energy consumption for both climate zone with or without lightning sensor.
2. In this condition select artificial lighting fixture having lower wattage and similar luminance level and then calculate annually energy consumption for both climate zone with or without lightning sensor.

SIMULATION/ EXPERIMENTAL WORK

This project Ayukta imagineers & construction office building, located in Gujarat, India. This is an single floor office room having 350sq. ft. area with attached washroom. The original figure are shown.

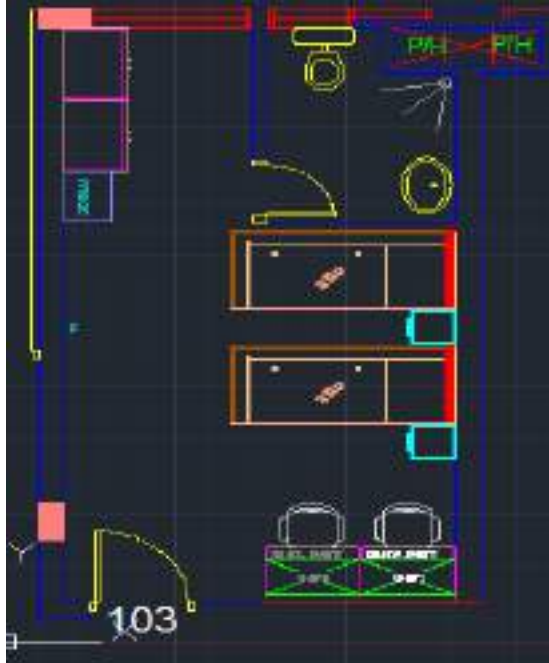


Figure 1: Auto-Cad Drawing of the project



Figure 2: Dilux evo daylight simulation top view

DAYLIGHT ANALYSIS OF A BUILDING IN GUJARAT

Daylight simulation input will be taken from ECBC 2017 (Energy Conservation Building Code).

According to methodology, initially calculate available daylight Lux level inside the office room between office hour 10:00AM to 5:00pm. for this simulation hot and dry climate zone the Longitude is 71.19 degree and altitude is 22.26 degree. Put these value and import the



DiLux evo file and calculate Lux level. The result are shown in given table.

Table 1: Available Daylight Lux level in different time slot

SR. NO	TIME	LUX LEVEL GUJARAT
1	10 AM	483
2	11 AM	539
3	12 PM	564
4	01 PM	557
5	02 PM	518
6	03 PM	451
7	04 PM	358
8	05 PM	248

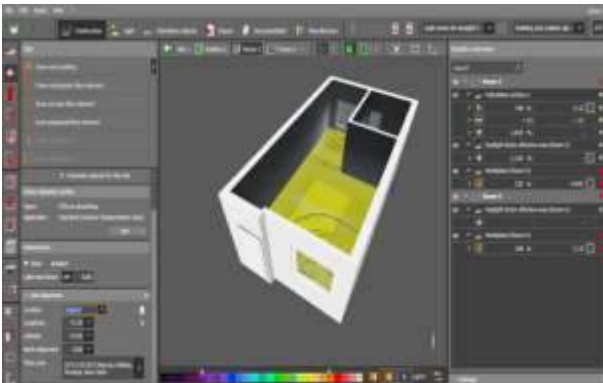


Figure 3: Putting the value of Altitude and Longitude

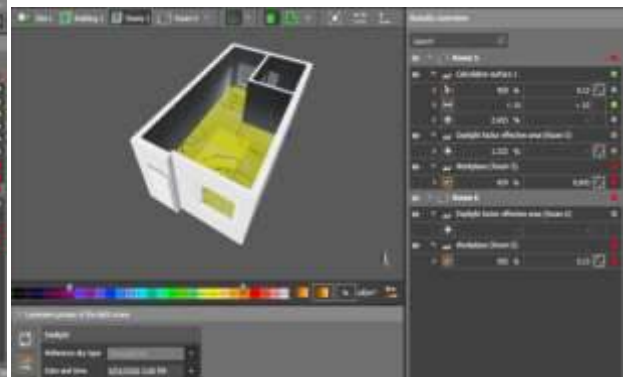


Figure 4: Available daylight Lux level at 03:00 Pm

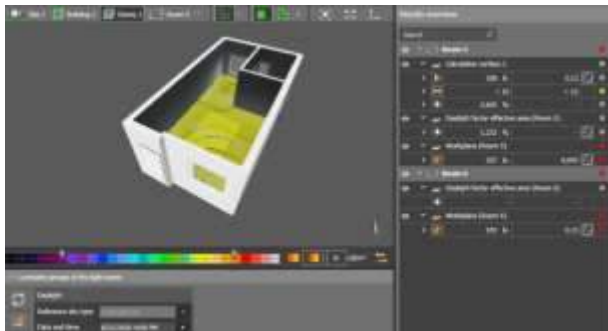


Figure 5: Available daylight Lux level at 04:00 PM

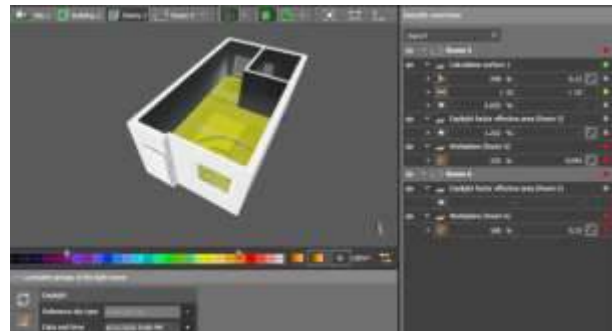


Figure 6: Available daylight Lux level at 05:00 PM

DAYLIGHT ANALYSIS OF A BUILDING IN ARUNACHAL PRADESH

According to Methodology, Initially calculate available daylight Lux level inside the office room between office hour 10:00AM to 5:00 PM. for this

simulation, Warm and Humid climate zone the longitude is 97.73 degree and altitude is 28.22 degree. Put these value and import the diLux evo file and calculate Lux level. The result are shown in given table.



SR. NO	TIME	LUX LEVEL ARUNCHAL PRADESH
1	10 AM	556
2	11 AM	562
3	12 PM	538
4	01 PM	485
5	02 PM	407
6	03 PM	308
7	04 PM	197
8	05 PM	79.1

Table 2: Available Daylight Lux level in different time slot

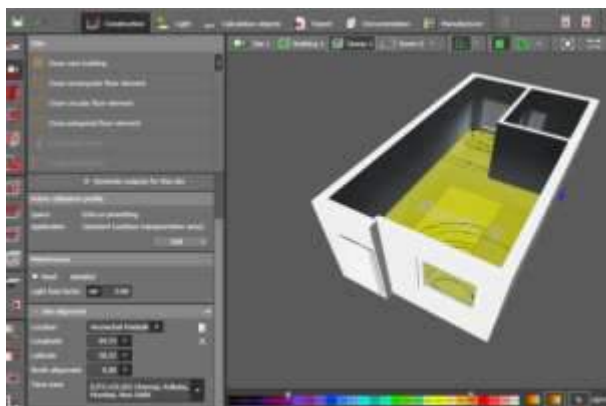


Figure 7: Putting the value of Altitude and Longitude



Figure 8: Available daylight Lux level at 03:00 Pm



Figure 9: Available daylight Lux level at 03:00 Pm

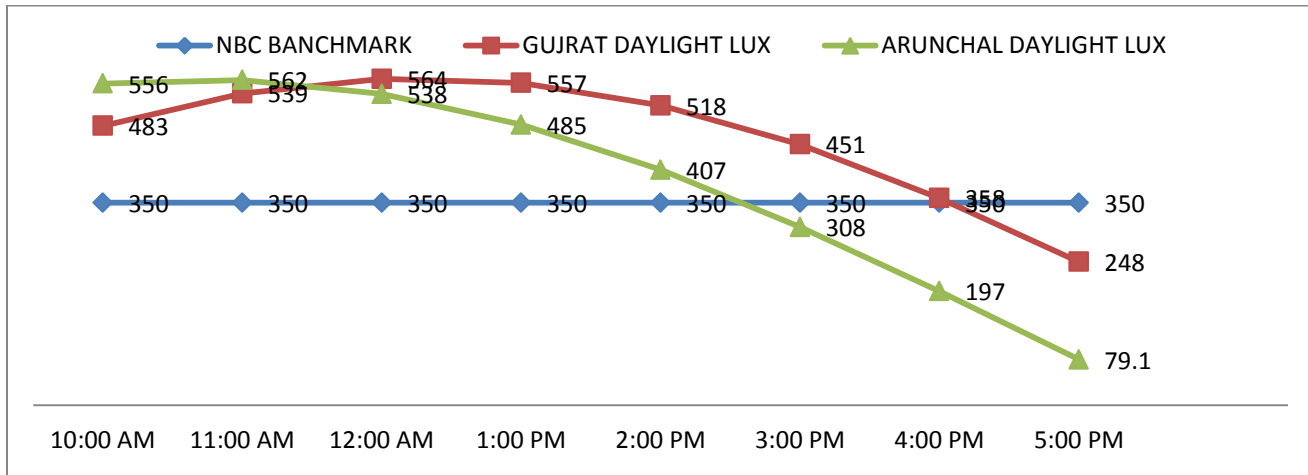


Figure 10: Available daylight Lux level at 03:00 Pm

NEED ARTIFICIAL LIGHT

According to NBC (National Building Code) in a small office building minimum Lux level are required at work lane height should be 350 Lux. So Compare

with available Lux level to NBC benchmark, if the available Lux inside the office building below the 350 Lux than required artificial light. By the simulation result two condition are occur.



Comparison graph available lux to the NBC benchmark (350 LUX)

1. If the office building are allocated in Hot & Dry climate zone than artificial light required between 4:30 Pm
2. If the office are allocated warm & humid climate zone than artificial light required between 3:00m to 5:00Pm

So by these result conclude that in annually energy consumption a measure difference are occur. To calculate the energy consumption use eQUEST software.

ENERGY CALCULATION

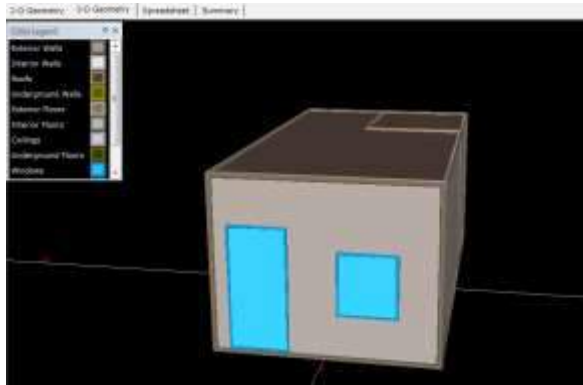


Figure 11: eQUEST simulation modal climate zone

To evaluate optimized energy performance of the Building a computer simulation model is used to assess and identify the most cost effective energy



Figure 12: Import weather file Hot and Dry

measures. The energy performance has to be quantified and compared to a Base-case Building that complies with ECBC (Energy Conservation Building Code) and ASHRAE Standard 90.1-2010.



Figure 13: Import weather file Warm & Humid climate zone Figure 14: Input Proposed wall U value

BUILDING ENVELOPE SUMMARY

The project building envelope has a “single glazed glass assembly”. The U-values of building envelope assemblies are less efficient compared to the baseline

requirements. This has a sort of impact on the building’s energy efficiency.

Envelope Parameter's	Base Case, Hot & Dry climate	Base Case, Warm & Humid climate
Roof Assembly	Proposed Construction consists in order from exterior to interior as high SRI tiles 10mm, concrete screed 25mm, Brickbat Coba75 mm, Cement plaster 20mm, RCC Slab 200mm, Rubber Insulation 19mm, with a U-factor of 0.33 (W/m2 .K)	R-15 insulation entirely above deck with a U-factor of 0.33 (W/m2 .K)
Wall Assembly	Proposed Construction Consists of in order from exterior to interior as Stone Cladding 45mm,Plaster of 20mm"Air Gap , brick wall 230 mm and a plaster of 20mm with a U-factor of 0.40 (W/m2 .K)	Proposed Construction Consists of in order from exterior to interior as Stone Cladding 45mm,Plaster of 20mm"Air Gap , brick wall 230 mm and a plaster of 20mm with a U-factor of 0.40 (W/m2 .K).
Glass Construction (SHGC)	“Single Glazed glass with a VLT of 0.27	Single Glazed glass with a VLT of 0.27
Window Wall Ratio (WWR)	5%	5%



Figure 15: Proposed Roof U value



Figure 16: Proposed Glass Input value

LIGHTNING LOAD SUMMARY

The project lighting is designed with the “Building Area” method of lighting. The high efficiency interior LED lighting specified has a significant impact on the overall energy savings of the project. Baseline Lighting Power Density (LPD) is taken Per ECBC Standards. The “lighting power

density” for baseline case is being taken as 0.95 W/ft². The building is installed with occupancy sensor and daylight sensor as per the mandatory requirements of ECBC and ASHRAE 90.1 2010 Section 8.4. Savings for occupancy sensor is claimed by running zones with OS on a different schedule.

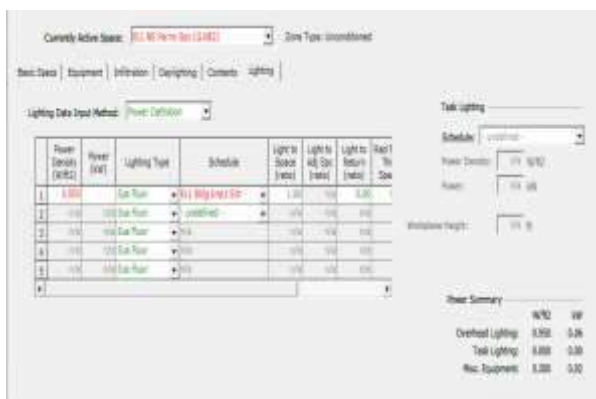


Figure 17: Input LPD value



Figure 18: eQUEST modal with lightning sensor



Energy Consumption without lightning sensor in Hot & Dry climate zone (Gujarat)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0	0	0	0	0	0	0	0	0	0	0	0	0
Heat Reject.	0	0	0	0	0	0	0	0	0	0	0	0	0
Refrigeration	0	0	0	0	0	0	0	0	0	0	0	0	0
Space Heat	0	0	0	0	0	0	0	0	0	0	0	0	0
HP Supp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Water	0	0	0	0	0	0	0	0	0	0	0	0	0
Vent. Fans	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumps & Aux.	0	0	0	0	0	0	0	0	0	0	0	0	0
Ext. Usage	0	0	0	0	0	0	0	0	0	0	0	0	0
Misc. Equip.	27.4	24.9	27.7	28.3	27.7	27.3	28.5	27.7	27.3	28.5	24.4	28.5	328.1
Task Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Lights	70.1	62.8	70.8	74.3	71.2	70.5	73.8	69.9	70.5	74.2	60.8	73.8	842.7
Total	101	91.5	101.5	105	101.5	100.7	105.3	101.5	100.7	105.3	88.2	105.3	1,170.80

Condition-2

Selection of artificial light:

Selection of Artificial light: As per methodology select artificial light that have low wattage and high luminance level. For the simulation import catalog chart of Philips in Dilux evo software. Select 36wattage fixture.

Energy Consumption without lightning sensor in Warm & Humid Climate Zone (Arunachal Pradesh)													
Misc. Equip.	27.4	24.9	27.7	28.3	27.7	27.3	28.5	27.7	27.3	28.5	24.4	28.5	328.1
Task Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Lights	73.5	66.6	73.8	76.7	73.8	73.4	76.8	73.8	73.4	76.8	63.8	76.8	879.5
Total	101	91.5	101.5	105	101.5	100.7	105.3	101.5	100.7	105.3	88.2	105.3	1,207.60
Energy Consumption with lightning sensor in Hot & Dry climate zone (Gujarat)													
Misc. Equip.	27.4	24.9	27.72	28.33	27.69	27.29	28.46	27.69	27.29	28.46	24.4	28.46	328.07
Task Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Lights	34	29.7	33.04	32.61	30.45	30.08	32.81	31.85	32.14	34.73	29	35.71	386.05
Total	61.4	54.6	60.76	60.94	58.14	57.36	61.26	59.54	59.43	63.19	53.3	64.17	714.11
Energy Consumption with lightning sensor in Warm & Humid Climate Zone (Arunachal Pradesh)													
Misc. Equip.	27.4	24.9	27.72	28.33	27.69	27.29	28.46	27.69	27.29	28.46	24.4	28.46	328.07
Task Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Lights	44.3	38	40.49	40.55	37.92	37.58	39.79	39.04	39.54	43.59	38.2	46.74	485.64
Total	71.7	62.9	68.2	68.88	65.61	64.87	68.25	66.73	66.83	72.05	62.6	75.2	813.7

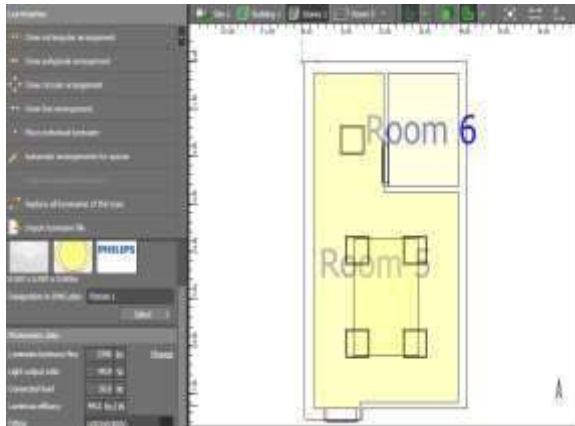


Figure 19: Adopt 36 watt fixture

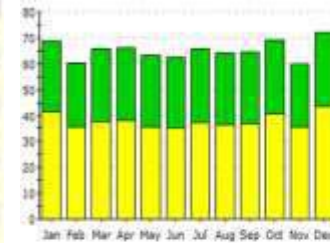


figure 20: after simulation available Lux

After Simulation achieved 439 Lux in all time of the day that lux level fulfill the NBC benchmark lux level for the office building. By these lightning load calculate LPD value. And get 0.83 watt/ft sq. Now put

this LPD value into eQUEST as an lighting input. And then calculate annually energy demand in both climate zone. This process are repeat by selecting different lightning fixture

System Component (kW)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool													
Heat Rejec													
Refrigerat													
Space Heat													
HVAC Fan													
Water Heat													
Hot Water													
Power & Aux.													
Electric													
Net Load	7.0	2.0	17.0	10.0	7.0	2.0	24.0	7.0	2.0	24.0	4.0	24.0	117
Task Light													
Misc. Equip	4.3	3.0	17.0	10.0	3.0	2.7	17.0	3.0	7.0	4.3	3.0	4.3	45.0
Total	11.3	5.0	34.0	20.0	10.0	4.7	41.0	10.0	31.0	28.0	7.0	28.0	162



Energy Consumption (KWh) in warm & Humid climate zone with daylighting sensor (applied artificial light of 36 watt each)													
Misc. Equip.	27.4	24.9	27.72	28.33	27.69	27.29	28.46	27.69	27.29	28.46	24.39	28.46	328.07
Task Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Lights	41.31	35.49	37.9	38.01	35.58	35.27	37.33	36.59	37.04	40.76	35.66	43.61	454.56
Total	68.71	60.39	65.62	66.34	63.27	62.55	65.79	64.28	64.33	69.22	60.05	72.07	782.63
Energy Consumption (KWh) in warm & Hot & Dry zone with daylighting sensor (applied artificial light of 36 watt each)													
Misc. Equip.	27.4	24.9	27.72	28.33	27.69	27.29	28.46	27.69	27.29	28.46	24.39	28.46	328.07
Task Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Lights	32.31	29.50	30.9	31.01	28.58	28.01	31.33	30.59	32.04	34.76	29.66	36.61	375.03
Total	59.71	54.04	58.62	59.34	56.27	55.3	59.79	58.28	59.33	63.22	54.05	65.07	703.1



RESULT & DISCUSSION

India have longitudes 68°7'E and 97°25'E. it mean from East (Gujarat) to West (Arunachal Pradesh) having 30 degree difference and sun take 4 minute to cross one degree altitude angle that's why there is a time lag of two hours. So due to this variation are occur in daylight lux level of both region. The same concept are applied in this paper.

When determine the daylight lux availability inside the building in office time for the both climate zone and compare this lux level to the NBC benchmark

for the particular space type than observe that in Ho & Dry climate zone required artificial light only 1.5 hour but in warm and humid climate required artificial light in 3 hour of a day. Due to this variation are occur in annually energy demand. If applied the lightning sensor than this variation become too large.

If we select lower wattage fixture than value of LPD are also decrease that's why annually energy demand variation become more in both climate zone.

Climate Zone	City	LPD (Lightning Power Density)	Annually Energy Demand Without Lighting Sensor	Annually Energy Demand With Lighting Sensor
Hot & Dry	Ahmadabad	0.95 watt/ft. sq.	1170.80	714.11
Warm and Humid	Arunachal Pradesh	0.95 watt/ft.sq.	1207.60	813.7
Difference in Annually energy demand in KWh.			36.8	99.53
Warm and Humid	Arunachal Pradesh	0.86 watt/ft.sq.	782.63	
Hot & Dry	Ahmadabad	0.86 watt/ft. sq.	703.01	
Difference in Annually energy demand in KWh.			79.62	

CONCLUSION

Energy Saving is the major task in every sector to move toward sustainability, Building sector is the biggest sector where energy are utilize and in this sector we can save more energy and adopt the sustainability. By this study, conclude some result

1. Before to construct the building we can analysis the whole building annually energy consumption demand in terms of lightning.
2. ECBC say's for lightning that lightning should be fulfill the criteria of LPD that is in watt/ft.sq. but by this case study it's prove that if we design proper lightning in building in any climate zone that LPD value may vary so lightning s\design should be in luminance/sq.ft. or its may be a fixed value of Lux.
3. ECBC say's that lightning sensor is mandatory requirement for lightning simulation but sensor modulate only lux level not wattage. So it's a challenge for ECBC code that lightning design should be depend only lumens per sq.ft..

4. If we design proper lighting than achieved comfort and reduced HVAC load of the building.

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CULTIVATION OF MEDICINAL CHAMOMILE (*MATRICARIA RECUTITA L.*) BETWEEN THE ROWS OF ROSEHIP PLANTATION (*ROSA CANINA L.*)

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ABSTRACT

The article provides information on the creation of rosehip fields according to the new scheme (10x2m), as well as on the ways of the rational use of irrigated lands. This scheme notes the advantages of rational land use, cultivation with row spacing mechanisms, taking measures against diseases and pests, harvesting, agricultural activities, including sowing medicinal and other seasonal crops in the area, as well as the effective use of irrigated land for growing rosehip seedlings or achieving economic efficiency from the first year.

KEYWORDS: *Uzpharmsanoat SJSC, soil erosion, mountain reclamation, bioecology, Rosa canina L., Matricaria recutita L., Asteraceae, Tsirkumboreal, Eastern Europe, "Shifobakhsh" Center for Cultivation and Processing of Medicinal Plants, planting scheme.*

INTRODUCTION

The process of development of the pharmaceutical industry and the natural expansion of the production of new drugs is a process that depends on the study and extraction of their substances from the raw materials of medicinal plants. Rosehip and medicinal chamomile are valuable natural raw materials included in the Pharmacopoeia of the CIS countries for medicinal properties and practical application. In particular, the annual demand for rose hips in the CIS countries is 6-8 thousand tons, but this demand is satisfied by 50-60%.

The strategy of action of the Republic of Uzbekistan for 2017-2021 defines one of the important tasks as "optimization of sown areas and crops in agriculture, the introduction of advanced agricultural technologies and increasing yields,

increasing fruit and vegetable production and grapes" [1]. In this regard, it is important to expand scientific research on the cultivation and development and implementation of new technologies, taking into account the biological properties of medicinal and food plants.

The activity of forestries in different regions of the country is determined for different purposes depending on their climatic and soil conditions. That is, the main tasks of forestry located in mountainous areas are focused on mountain reclamation (preventing soil erosion, moisture retention, etc.), and in forestry located in desert areas, on desert reclamation (preventing sand erosion, stopping moving sands, construction of pastures, etc.).

In this regard, various schemes were developed, as well as scientific research by E.T.



Berdiev focused on bioecology and methods of reproduction of namatak plants and planting [6,7]. The research by F. Chorshanbiev (2018) is devoted to bioecology and technology of reproduction of barberry [10]. The authors, taking into account the life form of the plants, preferred to use schemes 3x1,5M.; 3x1M.; 4x2,5M.; 3x1,5M. 3x4M.; 4x2M.;4x3M when creating their plantations [6.7.10].

Long-term experience has shown that when placing seedlings of rose hips or other shrub plants according to the above schemes, in addition to ensuring an average yield of 1-1.5 t / ha, the field of rose hips grows and develops in width and height over the years. As a result, it becomes more difficult to process rows of the rosehip plantation and completely harvest the rose hips. This, in turn, requires the development of new planting schemes when creating industrial plantations of plants in specialized state forestry enterprises, based on the set goals.

M.Allayarov, M.Kholmatov [3] noted that it is possible to create rosehip plantations in a 10x2m scheme and grow medicinal herbs in the aisles for many years. Continuing this study, M.U. Allayarov, A. Mamatkarimov, E. Akhmedovs have developed guidelines and recommendations for the organization of industrial plantations of rose hips according to the new scheme 2x10 m in specialized state forestry and the cultivation of medicinal plants in the aisles.

OBJECT OF RESEARCH

Plants of rosehip (*Rosa canina L.*) and medicinal chamomile (*Matricaria recutita L.*). Rosehip (*Rosa canina L.*) is a perennial shrub up to 2 m tall, belonging to the Rosaceae family. Rosehips are mostly found in northern Europe, and their range extends eastward to the Urals, Siberia, the Caucasus and East Asia. [5]

Chamomile (*Matricaria recutita L.*) is an annual plant belonging to the Asteraceae family. The plant is found naturally in the oasis of Tsirkumboreal flora (Eastern Europe, Western Siberia) [2]

RESEARCH METHODS

Scientific research on the cultivation of rosehip on industrial plantations and the study of agronomic methods of planting medicinal plants in the aisles were carried out in the "Chodak"

department of the Specialized State Forestry named after Abu Ali ibn Sino at the Center for the cultivation and processing of medicinal plants "Shifobakhsh" (1100-1200m above sea level). In field experiments, open fields and lands with medium fertility were chosen for planting rose hips and medicinal chamomile.

Field experiments were carried out on the basis of the guidelines developed in 2014 by the Center for the cultivation and processing of medicinal plants "Shifobakhsh", and methodological recommendations developed in 2015 by specialists and researchers of the Uzbek Scientific Research Institute of Forestry, the Botanical Garden of the Academy of Sciences of Uzbekistan, the Agency for the Development of the Pharmaceutical Industry Uzbekistan. Sample and diagonal methods were used to determine plant yield. The yield of medicinal plants was collected on the basis of 3 returns at 1p / m and measured wet. Once the wet yield of the raw material was determined, it was dried, re-measured, and the yield per hectare was determined.

RESEARCH RESULTS

In 2012-2014, in the "Chodak" branch of the specialized forestry of Abu Ali ibn Sino, industrial plantations (April 5) with a height of 30-35 cm of the first grade and 50-60 cm of high-grade rose hips were laid according to a 10x2 m scheme, and medicinal chamomile was planted in the aisles (scheme).

It should be noted that such a scheme has such advantages as efficient land use, good soil cultivation mechanisms, taking measures against diseases and pests, as well as a full harvest, as well as sowing medicinal and other seasonal agricultural crops in arable land, carrying out agrotechnical measures on them, as well as the effective use of lands planted with rosehip.

Medicinal chamomile was sown from seed in autumn (mid-October, November) and spring (March and April) in the experimental field as an annual medicinal plant. In order to distribute the seeds evenly over the sown areas, they were sown by mixing them with ash, soil or fine sand. The sowing rate of seeds was 3-4 kg per hectare (Table 1).



Table 1.
Establishment of rosehip plantations and efficient use of row spacing

Name	Between the rows, m	Between the seedlings in a row, m	Number of seedlings per hectare, pcs
Rosehip	10	2	500
Medicinal chamomile	0.7	3-4 кг (3-4sm)	47 283 000

The germination rate of chamomile seeds sown in autumn (October and November) was 80-82%. At the same time, it was found that the germination rate of seeds sown in spring (March and April) was 74.5-76.7%, and decreased from mid-April to May (60%). This indicates that the amount of rainfall that occurs in the fall has a positive effect on seed germination.

Seeds sown in the fall germinated until the first days of winter (before the cold snap). After 20-30 days in the seedlings formed from each germinated seed, 6-10 balls of leaves grow, which overwinter in the form of grass. During the growing season, up to 3-4 branches were observed on plants germinated from seeds sown in autumn, and up to 2-3 branches in plants germinated on seeds sown in spring. In autumn, the main stem height is 37.0 ± 2.24 cm and the number of leaves is 34.4 ± 1.4 cm, in spring plants the main stem is 31.0 ± 1.2 cm and the number of leaves is 27.2 ± 1.3 cm. The number of first-order twigs planted in autumn was 23.4 ± 1.9 , the length was 20.4 ± 1.87 cm and the number of leaves was $18.8 - 1.08$, the number of second-order twigs was 12.8 ± 1.3 , length- 14.7 ± 1.6 cm and the number of leaves reaches 12.2 ± 1.4 . The number of buds on the plants was 25.7 ± 2.2 , the number of flowers - 24.2 ± 1.7 , the number of fruits formed - 19.1 ± 1.5 , the number of ripe fruits - 13.2 ± 1.3 (Table 2).

According to Yu.M.Murdakhaev [5], in the plantations of medicinal chamomile planted as an additional crop between rows, in the Tashkent Botanical Garden, the yield was 0.65-0.70 t/ha, while according to B.Yo.Tukhtaev [6], in saline soils the flowering raw material of medicinal chamomile was about 0.55 ± 0.09 t ha and the seed yield was about 0.05 ± 0.01 t/ha.

In our experiments, when the medicinal chamomile plants were treated on the basis of the necessary agro-technical measures, the yield was 0.55-0.65 t/ha. This confirms the data of Yu.M.Murdakhaev [5] and B.Yo.Tukhtaev [6]. However, in plantations established on an industrial scale, the flower yield did not exceed 0.40-0.45 t/ha, the seed yield did not exceed 0.07 t/ha, and the aboveground parts (hay) did not exceed 0.60 t/ha (600 kg).

In scientific experiments, at the same time, in the main crop rosehip plantations, by the first days of June, the height of first-grade seedlings is 50-57 cm, and the height of high-grade seedlings is 77-80 cm, and at the end of the growing season the figure reaches 83-107 cm.

Industrial plantations of medicinal chamomile can be used in the first and second years (1-2 years). From 3 years onwards, a decrease in yield rate of 120-150 kg/ha was observed during the observations. The vegetation period of the medicinal chamomile plant coincides with the spring-summer seasons. For this reason, it is advisable to plant other seasonal crops in the summer months (to vacant areas in July and August). This is because the land is cultivated, soil fertility is restored and legumes are enriched with nitrogen.



Table 2
Growth and development of medicinal chamomile plant

Name of the plant	Life form	Sowing time	The main stem				Branches						number of buds	number of flowers	Seeds, number of fruits	
			height, cm	number of leaves	leaf fall	timber, cm	1st order			2nd order					formed	ripe
							quantity	length, cm	number of leaves	quantity	length, cm	number of leaves				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Matricaria ecutita L.	1	autumn	37,0± 2,4	34,4± 2,4	4,4± 1,2	21,8± 2,1	23,4± 2,3	20,4± 1,9	18,8± 1,7	12,8± 1,3	14,7 ± 1,6	12,2± 1,4	26,7±2,2	24,2±1, 7	19,1±1,5	13,2±1, 3
Matricaria ecutita L.	1	spring	31,± 1,4	27,2 ±1,3	2,04± 2,0	18,1±1 ,7	18,4± 1,8	17,4± 1,9	12,6 ± 1,5	9,8± 1,25	10,0± 1,1	8,2± 1,3	15,7± 1,2	15,2± 1,5	14,2± 0,92	8,2± 1,02



In order to ensure the growth and development of plants, agro-technical measures (during the summer months it was watered 3-4 times, 2 times weeded and 2 times lightly mowed in small areas and cultivated in large areas at a depth of 4-6 cm) were taken on them.

CONCLUSION

Thus, the establishment of industrial plantations on a 10x2m scheme from rosehip seedlings, planting medicinal and other seasonal agricultural crops in the row spacing will allow efficient use of land. This scheme has important advantages, such as efficient use of irrigated lands, intercropping mechanisms, disease and pest control and harvesting, rational use of irrigated lands with intercropping of medicinal and other seasonal crops. In the plantations established on an industrial scale, from the first year, the flower yield of the medicinal chamomile plant is 0.40-0.45 t/ha, the seed yield is 0.07 t/ha and the aboveground parts (hay) are around 0.60 t/ha (600 kg). Industrial plantations can be used in the first and second years (1-2 years). From the 3rd year the yield level decreases to 120-150 kg / ha. So, if we consider the use of row spacing by building industrial plantations on a 10x2 m scheme of rosehip seedlings, economic efficiency can be achieved from the first year.

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SEMANTICS OF SOME ARABICISMS EXPRESSING THE SUBJECT OF EDUCATION

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ABSTRACT

The article studies some of the Arabic borrowings which are in use in Uzbek. Arabic borrowings are used in various fields. In particular, they are also there in the field of education. Some of the lexemes that are used in the field of education have been studied. Their lexical meanings have been studied, and their semantics have been carefully paid attention. In the study of the semantics of lexemes, the existence of semantics is explained in detail on the basis of a table.

KEY WORDS: *education, semantics, lexeme, Arabic borrowings, domla, muallim, borrowing, analysis, field, layer.*

DISCUSSION

The lexical fund of Uzbek language includes original and borrowed word layers. The layer of borrowings was enriched through words taken from Persian-Tajik and Arabic up until the beginning of XX century. By the beginning of the XX century, some of the Russian words were borrowed into Uzbek, and later some other international words entered Uzbek through Russian. Although the process of borrowing Persian-Tajik and Arabic words became loose for a while, the words borrowed from them stayed as a staple layer vocabulary fund of Uzbek. The Persian-Tajik and Arabic words claimed their layer status more than Russian words. It is difficult to distinguish them from other words before analysis of etymology and dictionaries. These borrowed words are considered to be borrowed only for the scholars, and for the public they have become an integral original layer words. Semantic development processes of borrowed words have taken place in accordance with Uzbek. In other words, the semantic of Arabic words have undergone changes in the

process of historical development. These words began to mean a complete another semantical meaning than they actually meant in Arabic. The case is unique to use of such borrowing in Uzbek and it is justified by the rule that lexemes have to adjust into internal linguistic development of a certain language. For instance, the change in the meaning of word *mehnat* from “tortures and agonies” into “an activity with a fruitful result or the change of the meaning of the word *maraz* from “illness” into “ill behavior or an ill-behaved person” are clear example of how the words change their semantically and how they got absorbed into Uzbek.

In Uzbek, there is a word *arabi*, which was introduced into Uzbek by the impact of Arab culture, which is used towards things and animals to mean that they originated from Arabia. Some examples of usage of the word is *arabi gilam* (a carpet from Arabia), *arabi ot* (a horse from Arabia), but a word or



a phrase borrowed from Arabic language is referred to as *Arabicism* in the science of linguistics¹.

Arabicism has been widely used in all spheres of socio-cultural life of Uzbek people to express various phenomena. It has been in wide use for social sphere of life. One of the social spheres to use Arabicism actively is the field of education.

The introduction of Arabicism into education process is connected with the following factors:

1. As a result of the Arab conquest, features unique to Arab education directorship was brought into Uzbek education system. Consequently, lexical units to express terms which are peculiar to Arab education directorship got borrowed into Uzbek.

2. Arabicism was introduced as a result of studying examples of Arab culture and through sources in Arabic language.

Arabicism in Uzbek has undergone a long period of historical stages from the time they were first borrowed to their current usage. In these historical periods, lexical-semantic processes in Uzbek lexical fund are there to reveal semantic development of Arabicism.

We observe changes in the semantics of Arabicisms based on the analysis of some lexemes that are actively used in the education system, expressing the subject of education.

One of the lexemes to denote “a person who educates” who is a subject of education is expressed through the word *domla*. In “O’zbek tilining izohli lug’ati” (Monolingual dictionary of Uzbek) the lexeme *domla* and its form *domullo* which has been phonetically changed were particularly paid attention:

Домла ст. 1 Домулла. [ф.+ҳинд. دادا – ота, катта +а. ملا –ўқитувчи; руҳоний олим]². Ўзбек тили изоҳли луғатида «домулла» лексемасининг маъноси - 1) мадраса ўқитувчиси; 2) диний урф одатларининг ижроچиси; 3) замонавий олий мактаб ўқитувчиси; 4) устоз, илмий раҳбар³.

Domla st. 1. Domulla [Persian +Indian دادا - father, great+ Arabic ملا - teacher; cleric]. The meaning of the lexeme «domullo» in monolingual dictionary of Uzbek – 1) teacher at madrasah; 2) the performer of religious rituals; 3) teacher of modern higher school; 4) master, scientific advisor.

The word was defined as a hybrid unit formed by Persian +Indian and Arabic. The lexeme formed in Arabic and borrowed into Uzbek from Arabic.

On the basis of the definitions provided in the dictionary, we observe the lexeme *domla* has the following meanings:

¹ Ўзбек тилининг изоҳли луғати. I.-Тошкент, 2006.-P.93

² Ўзбек тилининг изоҳли луғати. I.-Тошкент, 2006.-Б.642

³ Ўзбек тили изоҳли луғати, 1 том, Т.2006., Б.642.



Meanings of the lexeme <i>domla</i> given in the monolingual dictionary	Meanings of the lexeme <i>domla</i>				
	“Religious educator”	“An educated person”	“Educator”	“Sorcerer who uses religious knowledge for a magic spell”	“Someone who claims to be able to heal others”
“A form of respectful address to any scholar”			+		
“Religious school teacher”	+	+	+		
“A mullah who graduated from a madrasah”		+			
“A mullah who leads the mosque”	+	+			
“A person who deals with sorcery”				+	+
“Secondary and high school teacher; scientific adviser, teacher”		+	+		

The analysis of the lexeme *domla* has revealed that it has the following meanings: 1. “Religious educator”. 2. “An educated person”. 3. “Educator”. 4. “Sorcerer who uses religious knowledge for a magic spell”. The meaning “Educator” is the main semantic function of the word, while the others emerged later. The meanings of “an educated person” and “an educator” have always been there and they still are there in the semantic function of the word. The meaning of “Sorcerer who uses religious knowledge for a magic spell” emerged lately, and it is connected with culture of the nation, national views, customs and traditions.

All meanings of the word *domla* carries gender, the lexeme is used only for masculine. This roots back the time when women never served any of the functions mentioned above. Lexeme’s meanings “Secondary and High School Teacher; scientific leader, master” were formed under the influence of the socio-political and cultural environment of the second half of the XX century, in which there is no gender identity. The lexeme is applied in student speech to the person teaching in a higher education institution. The lexeme is applied to both sexes in this sense. “Domulla” is the most widely used meaning of the lexeme “domla” today - in the sense of a modern high school teacher, mentor and scientific advisor. This lexeme is also widely used in its original sense, that is, in relation to a person who has religious knowledge. This word is not used in the speech of secondary school pupils. But the use of the lexeme in relation to the secondary education teacher can also be observed in the speech of the parents of the pupils, the representatives of the neighborhood.

The commentary in the glossary, "a form of respectful treatment of any scholar," needs to be clarified. According to A. Irisov, the lexeme *domla* is synonymous with the lexeme (*domulla*), and the root

is considered to be the lexeme «`alim». It is used for scholars, university teachers, doctors of science, and great writers⁴. In the semantics of a lexeme, the semantics of “teaching” and “speaking” predominate. Hence, the lexeme of *domla* is applied not to any educated person, but mainly to the person who teaches. The following example also proves our point: *Shaykhzoda domla, although he did not teach me, taught at the institute where I studied*⁵.

In the educational process, the word *ustoz* (teacher) of Persian-Tajik origin is used synonymously with the lexeme *domla*. This lexeme is especially active in the secondary education system. There is an expansion in the semantics of the lexeme *ustoz*, which is used in relation to any educator, except for the meaning of “an example”, “an exemplary person”. The synonyms of the lexeme *domla* also differ regionally. In some areas, female teachers are referred to as *opoy* or *mullah opa*, while in some areas, such as the districts of Kashkadarya region, the word *o`qituvchi* is generally used. The word *muallim*, which is synonymous with the lexeme *domla*, is specific to the artistic style.

Muallim [Arabic. معلم educator, teacher, mentor]. 1. A person who teaches; teacher, pedagogue. 2. Educator, a person who educates someone on something; can also be referred to as *ustod* or *ustoz*⁶. In certain regions, for instance, in parts of Tajikistan where Uzbeks reside the term

⁴ Ирисова., Тошкентда арабшунослик. Қисқача очерк (Арабистика в Ташкенте. Краткий очерк). – Т.1964, Фан

⁵ Ўзбек тилининг изоҳли луғати. I. – Тошкент, 2006. – P.642

⁶ Ўзбек тили изоҳли луғати, II том, Т.2006., Б.623



muallim is used for a male pedagogue and *muallima* for a female pedagogue.

The use of the lexeme *domla* is wider than that of *muallim* and its frequency is also much higher than that of the later.

The lexeme *o'qituvchi* which is considered to be partial synonymous of *domla* is mainly used as a noun referring to a person. It is almost never used as an addressing phrase. The lexeme *domla* is used both as a proper noun and as a term to address.

The following conclusion can be drawn after the analysis of the lexeme *domla* which serves to express education subject.

1. Arabicisms assimilated into the Uzbek language and for a long time obeyed the laws of semantic development of this language. For example, the semantic change of the lexeme *domla*, its use in the sense of "teacher in higher education", the absence of gender specificity is a product of subsequent semantic development.

2. As a result of the active use of Arabicisms, the Turkic words, the range of consumption of their stratified units, narrowed or disappeared from consumption. There is also the meaning of "healing" in the sense of "sorcery with the help of religious knowledge", "a sorcerer who claims to use magic spells in the name of religion". The lexeme *emchi*, which represents the person performing this function, has fallen out of use within the literary language. It has survived only in some areas.

3. Arabicisms assimilate into the Uzbek language and participate in lexical-semantic paradigms within this language. The lexeme *domla* enters into a synonymous relationship with a number of lexemes and is distinguished by its specific meanings.

Arabicisms can be considered as an active part of the Uzbek language lexical fund.

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SOCIO – ECONOMIC AND DEMOGRAPHIC DETERMINANTS THAT MOTIVATING TO PURCHASE HEALTH INSURANCE WITH SPECIAL REFERENCE TO IT PROFESSIONALS IN KERALA

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ABSTRACT

There may be several factors which influence an individual to take or not to take health insurance policies which are quite unknown or unexplored. From the preliminary studies, it was observed that health care costs are on the rise, public awareness on health issues is growing, chronic diseases that necessitate long term treatment are becoming common and many health insurance companies are making a variety of offers; but large section of people are not taking health insurance policy. In a country of 1.2 billion with an insurable population assessed at 250 million, only 15% of the population has any form of health insurance coverage. In this context, it becomes important to understand the factors influencing the purchase of health insurance policies in the state of Kerala. Health insurance business is greatly influenced by the rate of growth of population, social security system, and health care system, changes in customs, social practices and changes in the attitudes. Hence it is relevant to study the customer's attitude towards investment in health insurance. This study is designed to investigate the influence of socio- economic and demographic profile of the respondents that motivating to purchase Health insurance among IT professionals of Ernakulam district of Kerala.

KEYWORDS- *Health Insurance, Insurance policy, customer attitude, Investment, socio-economic and demographic factors*

1. INTRODUCTION

The purchase of health insurance is one of the most important purchasing decisions for individuals and families and it is a critical component of a long-term financial plan. Although most of young Indians agree that health insurance is the best way to protect against the premature death of a primary wage earner, results of various research study reveal the fact that consumers consider the investing of health insurance to be a complex process and eight in ten

find it difficult to decide how much and what type of health insurance to get. The worry about making an incorrect decision becomes an excuse for not getting health insurance. This issue creates interest in examination of the consumer demand for health insurance. It is necessary for financial planners to understand consumer health insurance purchasing behavior in order to help them to buy suitable health insurance. In this research work researcher makes an attempt to analyze the influence of socio- economic



and demographic profile of the respondents that motivating to purchase Health insurance among IT professionals of Ernakulam district of Kerala.

2. OBJECTIVES OF THE STUDY

- To understand the socio economic factors influencing the purchase decision of health insurance policies.

3. RESEARCH METHODOLOGY

(a) Type of Research

Out of descriptive, experimental and exploratory research types, the researcher has decided to undertake descriptive research to study the present topic. The study aims to find out the customer's attitude towards investment in health insurance with special reference to Ernakulam district. This is a descriptive study that reveals the association between variables and these associations are interpreted statistically.

(b) Data Collection

(i). Secondary Data

For the secondary data the researcher has gained data from the relevant text books, journals, reports, articles, news papers, unpublished dissertations, working papers and the internet.

(ii). Primary Data

The survey strategy allows the researcher to collect which can be analyzed quantitatively using descriptive and inferential statistics. The data collected through survey strategy is easy to explain and understand. Moreover, it can be used to suggest possible reasons for relationships between variables and to produce models of these relationships.

(c) Sampling Method and Sample Size

The present study is focused on IT professionals of Info Park, Cochin. In Ernakulam district IT companies are established in Info parks, SEZ, Kinfra and private IT parks. Since there are many companies functioning in the Info park, the study is mainly focused on the employees of IT companies in Info park. There are a total of 92 IT companies functioning in the Info Park at Kochi. In the selected area there exist all the three types of companies namely Tire 1, Tire 2 and Tire 3. Selection of industrial units is based on two criteria. One is based on the type of organisation and second is based on the level of management. On the basis of type of organisation companies are classified as wholly foreign owned, joint venture, state venture and private owned. On the basis of type of organisation companies are classified under Tire 1, Tire 2 and Tire 3 companies. Companies having revenue more than 1 billion dollars comes under Tire 1 companies with more than 50000 employees. Companies with revenue over 100 million comes under Tire 2 companies list with employment of 4000

to 10000 employees. Companies having revenue less than Tire 2 companies are classified as Tire 3. There are only one Tire 1 and one Tire 2 companies existing here. Hence all of them were included in the sample as the study wants to analyse customer's attitude towards investment in health insurance. There are 90 Tire 3 companies in the Info Park. Among them 10 companies were taken as sample units by using random sampling method. Again the IT professionals in different tire companies further classified as top level, middle level and lower level professionals, according to employees positions.

A multistage random sampling method was adopted in the selection of the sample. In the first stage Info Park, Kakkannad was selected from Ernakulam District. In the next stage companies in the Info Park was classified as Tire 1, Tire 2 and Tire 3 companies on the basis of Global Industry Classification Standard (GICS). According to this base in Info Park there is only one Tire 1 company (Wipro) and one Tire 2 company (TCS) and 90 Tire 3 companies in the Info Park. Hence these two Tire 1 & Tire 2 and 10 Tire 3 companies were selected as samples. As the next stage IT professionals in different tire companies further classified as top level, middle level and lower level professionals, according to employees positions. Chief Officers and Corporate Officers are the top level employees, Management and administrative employees are in middle level employees and others are considered as lower level employees. The total number of employees from these 12 companies are 5430, from this on the basis of 7 % of total employees in top level, middle level and lower level were taken as samples.

4. DATA ANALYSIS AND RESULT DISCUSSION

DEMOGRAPHIC AND SOCIO-ECONOMIC PROFILE OF THE POLICY HOLDERS

Demography refers to the vital and measurable statistics of the population. Demographic profile of the sample size selected for a study has an important influence on the variables being analyzed. Demographic and socio-economic factors such as gender, age, marital status, educational qualification, experience and family size are some of the important determinant for deciding of health insurance. The study is conducted with reference to IT professionals of Ernakulam district. The socio-economic profile of the respondents is analyzed, based on the gender, age, marital status, area of residence, educational qualification, designation, experience, annual income, family size and type of the family of the respondents'.

**a. Gender of the respondents****Table: 1 Gender of the Respondents**

Sl. No	Gender	No. of Respondents	Percentage
1.	Male	235	62
2.	Female	144	38
	Total	379	100

Source: Primary Data

From Table 1, it is inferred that the out of 379 respondents surveyed, 62 per cent of sample respondents are male and 38 per cent of respondents are female. Health insurance is a subject matter of sale and not purchase. In this study it was found that the respondents' gender forms major base of the policy holders.

b. Age of the respondents

At the time of determination of Health insurance premium, age factor play very crucial role for the health insurance companies as well as customers. If age group is low, then health insurance companies charges low premium and if it is high, then they charge higher premium because mortality rate increases according to age. For this study, the age group were categorized in five groups, below 30 years, 31-40 years, 41-50 years, 51-60 years and above 60 years.

Table: 2 Age of the respondents

Sl. No	Age	No. of Respondents	Percentage
1.	Below 30 years	144	38
2.	31-40 years	141	37
3.	41-50 years	70	19
4.	51-60 years	24	6
5.	Above 60 years	0	0
	Total	371	100

Source: Primary Data

Table: 2 shows age groups of the respondents. It is found that 38 per cent of the respondents are under the age group of below 30 years, 37 per cent of sample respondents are in the age group 31-40 years. While 19 per cent of policy holders are in the age group 41-50 years and 6 per cent in the age group of 51-60 years.

c. Marital status of the respondents

Marital status is one of the major factor which influence in the investment decisions of the customers. It is an accepted truth that marriage brings in lot of responsibilities. Purchasing health insurance policy becomes one of the methods of fulfilling their obligations. For this research, the marital status of the respondents were categorized into four, married, unmarried, widowed and divorced.

Table: 3 Marital status of the respondents

Sl. No	Marital Status	No. of Respondents	Percentage
1.	Married	252	66
2.	Unmarried	107	28
3.	Widowed	14	4
4.	Divorced	6	2
	Total	379	100

Source: Primary Data

Table 3 depicts that out of 379 respondents surveyed, 66 per cent of respondents are married, 28 per cent of them unmarried, 4 per cent widowed and remaining 2 per cent of sample respondents are divorced.

d. Educational qualifications

An educational qualification of the respondents shows their attitudes and behaviors. Education positively influences the investment decision of the respondents. The respondents were classified into five groups according to the educational qualification.

**Table: 4 Educational qualifications of the respondents**

Sl. No	Educational Qualification	No. of Respondents	Percentage
1.	Below Plus Two	36	10
2.	Under Graduate	65	17
3.	Post Graduate Diploma	155	41
4.	Post Graduate	107	28
5.	Doctorate	16	4
	Total	379	100

Source: Primary Data

Table 4 represents the educational qualification of the respondents. It was observed that 41 per cent of the respondents are post graduate diploma holders, 28 per cent of sample respondents have completed post-graduation. 17 per cent of respondents have completed under graduation. Followed by 10 per cent of the respondents below plus two. The remaining 4 per cent of the sample population have doctorates.

e. Designation of the respondents

Designation of respondents in different category is one of the influential factor in the purchase decision. The designations of the respondents were classified as senior level, mid level and entry level.

Table: 5 Designation of the respondents

Sl. No	Occupation	No. of Respondents	Percentage
1.	Senior Level	48	13
2.	Mid level	212	56
3.	Entry Level	119	31
	Total	379	100

Source: Primary Data

Table 5 presents the information on the designation status of the respondents. From the detailed data analysis, it is found that 56 percent of the respondents are mid level professionals and 31 percent of the respondents are entry level professionals. The remaining 13 percent of sample respondents are senior level professionals.

f. Experience of the respondents

Experience of the respondents play a vital role in their purchase behaviour. The experience has a positive influence on the attitude towards investment in health insurance policies. For this study, the experience of the respondents were categorized into four, below 10 years, 10 – 20 years, 21 – 30 years and more than 30 years.

Table: 6 Experience of the Respondents

Sl. No	Experience	Number of respondents	Percentage
1.	Below 10 Years	189	50
2.	10-20 Years	131	35
3.	21-30 Years	59	15
4.	More than 30 Years	0	0
	Total	379	100.0

Source: Primary Data

Analysis of Table 6 reveals that 50 per cent of the respondents have below 10 years of experience, 35 per cent of them are with 10 to 20 years of experience and the remaining 15 per cent respondents have experience between 21-30 years.

g. Annual income

The annual income of the respondents influences their investment behavior as it determines the level to which the amount is allocate on the savings. For the particular study, the annual income categorized into five groups as up to 3 lakh, 3-5 lakh, 5-7 lakh, 7-9 lakh and above 9 lakh.

**Table: 7 Annual Income of the Respondents**

Sl. No	Monthly Income	No. of Respondents	Percentage
1.	Up to 3 Lakh	87	23
2.	3 - 5 Lakh	136	36
3.	5 - 7 Lakh	65	17
4.	7 - 9 Lakh	57	15
5.	Above 9 Lakh	34	9
	Total	379	100

Source: Primary Data

Table 7 explains about the monthly income of the respondents. It is observed that 36 percent of the respondents are earning between 3 – 5 lakh per annum and 23 percent of the respondents' annual income is up to 3 lakh. It is observed that 17 percent of the respondents are having annual income of 5- 7 lakh. Followed by, 15 per cent of sample respondents having income range between 7- 9 lakh and the remaining 9 percent of the respondents are having a monthly income of above 9 lakh. Thus, majority i.e., 36 per cent of the respondents' annual income ranges between 3- 5 Lakh.

h. Number of earning members in the household

Family income increases with the increase in the number of earning members in the household. Family income influences the buying behaviour of the family. The surplus family income, remaining after the expenditure on the basic needs of the family, is made available for buying shopping goods, savings and investments. The number of earning members were classified as one, two, three, four and above four members.

Table: 8 Number of earning members in the household

Sl. No	Number	No. of Respondents	Percentage
1.	One	170	45
2.	Two	183	48
3.	Three	12	3
4.	Four	7	2
5.	Above Four	7	2
	Total	379	100

Source: Primary Data

Table 8 represents that the out of 379 respondents surveyed, 48 per cent of sample population have two earning members in their family and 45 per cent of respondents have one member. Another 3 per cent of the respondents have three earning members in their family and remaining each 2 per cent of sample respondents have four members and above four.

i. Number of dependents in the family

Basically health insurance is a family protection device. Health insurance is family protection device. Health insurance cover should be appropriate according to family size. If dependents are more, then health insurance cover should be more and for fewer dependents it should be according to need. The numbers of dependents in the family of the respondents were classified as one, two, three, four and above four members.

**Table: 9 Number of dependents in the family**

Sl. No	Number	No. of Respondents	Percentage
1.	One	45	12
2.	Two	61	16
3.	Three	152	40
4.	Four	91	24
5.	Above Four	30	8
	Total	379	100

Source: Primary Data

From the Table 9 it is found that the 40 per cent of the respondents have three numbers of dependents in their family, 24 per cent of sample respondents have four dependents, 16 per cent of sample respondents

have two and 12 per cent of them have one dependant. The remaining 8 per cent of the sample respondents have above four dependents.

MOTIVATION FOR PURCHASING HEALTH INSURANCE

Table: 10 schemes that motivated to own health insurance policy

Feature of Insurance	Weighted Average	Rank
Security	4.21	3
Risk cover	4.11	4
Awareness	4.02	5
Covering medical costs	4.76	1
Tax benefits	4.60	2

Source: Primary Data

From the detailed data analysis it is found that safeguards savings by covering medical costs has motivated majority of the sample population to own a health insurance policy. It is placed first in a list of five variables constructed for the study. Followed by tax benefits have motivated them to own a health insurance policy. The sample respondents' perception towards Security, Risk cover and Awareness are placed in third, fourth and fifth rank with a mean score of 4.21, 4.11 and 4.02 respectively.

SOCIO-ECONOMIC PROFILE AND MOTIVATION TO PURCHASE HEALTH INSURANCE

In a civilized society a consumer's behaviour is always influenced by social factors, such as influences of the consumer's reference group, family, and social roles and statuses on their buying behaviour. Marketers typically combine several variables to define a demographic profile. Once these profiles are constructed, they can be used to develop a marketing strategy and marketing plan. Understanding households' behavior in this manner can play an important role in predicting demand for health insurance also. However, emerging new complex financial products and changes in the preferences of people for preventing their risks make

this difficult. Creating demographic profile is important as the progress of health insurance penetration and density is far from satisfying and this indicates at some problem in the way it is being sold in a country like India. Overselling health insurance to few wealthy people in the society is not going to be the panacea for all the life insurers. They need to realize that every insurable individual has to be insured and then only the motive of health insurance can be fulfilled in the right sense. Analysis and understanding of the attitude of customers of health insurance according to their demographic characteristics becomes important. This will enable the insurers to better prepare their marketing strategies as per the requirements of the people in the region. To test prove or disprove above stated statement the following hypotheses are framed and tested.

H0: There is no significant difference among the different age groups regarding the features of health insurance plan that motivated the purchase of health insurance policy

H1: There is significant difference among the different age groups regarding the features of health insurance plan that motivated the purchase of health insurance policy

**Table: 11 Result of ANOVA
Features of Health insurance Plans * Age**

		Sum of Squares	Df	Mean Square	F	Sig.
Security	Between Groups	23.036	3	7.679	6.097	.000
	Within Groups	472.262	375	1.259		
	Total	495.298	378			
Risk cover	Between Groups	36.651	3	12.217	7.745	.000
	Within Groups	591.507	375	1.577		
	Total	628.158	378			
Awareness	Between Groups	40.810	3	13.603	9.531	.000
	Within Groups	535.221	375	1.427		
	Total	576.032	378			
Covering medical costs	Between Groups	2.065	3	.688	.744	.010
	Within Groups	347.107	375	.926		
	Total	349.172	378			
Tax benefits	Between Groups	16.960	3	5.653	6.539	.000
	Within Groups	324.227	375	.865		
	Total	341.187	378			

Source: Primary data

The output table shows that the significance value of the ANOVA test for the features of health insurance plan motivated the purchase of health insurance policy among different age groups. The p values of Security, Risk cover, Awareness, tax benefits and covering medical costs are lower than the level of .05, we had set. Therefore we reject the null hypothesis at a significance level of 5% and conclude that there is significant difference among the different age groups regarding the features of health insurance plan (Security, Risk cover,

Awareness, Covering medical costs and tax benefits) that motivated to purchase health insurance policy

H0: There is no significant difference among the respondents of different educational qualifications regarding the features of health insurance plan that motivated the purchase of health insurance policy.

H1: There is significant difference among the respondents of different educational qualifications regarding the features of health insurance plan that motivated the purchase of health insurance policy.

**Table: 12 Result of ANOVA
Features of Health insurance Plans * Education**

		Sum of Squares	Df	Mean Square	F	Sig.
Security	Between Groups	37.910	4	9.477	7.750	.000
	Within Groups	457.388	374	1.223		
	Total	495.298	378			
Risk cover	Between Groups	24.121	4	6.030	3.734	.005
	Within Groups	604.037	374	1.615		
	Total	628.158	378			
Awareness	Between Groups	65.531	4	16.383	12.002	.000
	Within Groups	510.501	374	1.365		
	Total	576.032	378			



Covering medical costs	Between Groups	22.502	4	5.626	6.441	.000
	Within Groups	326.669	374	.873		
	Total	349.172	378			
Tax benefits	Between Groups	37.569	4	9.392	11.570	.000
	Within Groups	303.618	374	.812		
	Total	341.187	378			

Source: Primary Data

The output Table shows that the significance value of the ANOVA test for the features of health insurance plan motivated the purchase of health insurance policy among respondents having different educational qualifications. The p values of Security, Risk cover, Awareness, Covering medical costs, tax benefits are lower than the level of .05, we had set. Therefore we reject the null hypothesis at a significance level of 5% and conclude that there is significant difference among the different educational qualifications regarding the features of health

insurance plan that motivated to purchase health insurance policy.

H0: There is no significant difference between the marital status of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.

H1: There is significant difference between the marital status of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.

**Table: 13 Result of ANOVA
Features of Health insurance Plans * Marital Status**

		Sum of Squares	Df	Mean Square	F	Sig.
Security	Between Groups	4.775	3	1.592	1.217	.303
	Within Groups	490.523	375	1.308		
	Total	495.298	378			
Risk cover	Between Groups	14.156	3	4.719	2.882	.036
	Within Groups	614.002	375	1.637		
	Total	628.158	378			
Awareness	Between Groups	24.292	3	8.097	5.503	.001
	Within Groups	551.740	375	1.471		
	Total	576.032	378			
Covering medical costs	Between Groups	6.488	3	2.163	2.367	.071
	Within Groups	342.684	375	.914		
	Total	349.172	378			
Tax benefits	Between Groups	1.544	3	.515	.568	.636
	Within Groups	339.643	375	.906		
	Total	341.187	378			

Source: Primary Data

The output Table shows that the significance value of the ANOVA test for the features of health insurance plan motivated the purchase of health insurance policy among the respondents of different marital status categories. The p values of Risk cover, Awareness are lower than the level of .05, we had set. Therefore we reject the null hypothesis at a significance level of 5% and conclude that there is significant difference among the different marital status of the respondents and the features of health

insurance plan (Risk cover, Awareness) that motivated to purchase health insurance policy.

H0: There is no significant difference between different designations of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.

H1: There is significant difference between different designations of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.

**Table: 14 Result of ANOVA
Features of Health insurance Plans * Designation**

		Sum of Squares	Df	Mean Square	F	Sig.
Security	Between Groups	4.200	2	2.100	1.608	.202
	Within Groups	491.098	376	1.306		
	Total	495.298	378			
Risk cover	Between Groups	17.571	2	8.785	5.410	.005
	Within Groups	610.588	376	1.624		
	Total	628.158	378			
Awareness	Between Groups	69.672	2	34.836	25.868	.000
	Within Groups	506.360	376	1.347		
	Total	576.032	378			
Covering medical costs	Between Groups	10.441	2	5.221	5.795	.003
	Within Groups	338.730	376	.901		
	Total	349.172	378			
Tax benefits	Between Groups	4.817	2	2.408	2.692	.069
	Within Groups	336.370	376	.895		
	Total	341.187	378			

Source: Primary Data

The output Table shows that the significance value of the ANOVA test for the features of health insurance plan motivated the purchase of health insurance policy among the respondents of different employee designations. The p values of Risk cover, Awareness, Covering medical costs are lower than the level of .05, we had set. Therefore we reject the null hypothesis at a significance level of 5% and conclude that there is significant difference among the various category of employee designations and the features of health insurance plan (Risk cover,

Awareness, Covering medical costs) that motivated to purchase health insurance policy.

H0: There is no significant difference between experience of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.

H1: There is significant difference between experience of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.

**Table: 15 Result of ANOVA
Features of Health insurance Plans * Experience**

		Sum of Squares	Df	Mean Square	F	Sig.
Security	Between Groups	14.556	2	7.278	5.692	.004
	Within Groups	480.742	376	1.279		
	Total	495.298	378			
Risk cover	Between Groups	66.607	2	33.304	22.299	.000
	Within Groups	561.551	376	1.493		
	Total	628.158	378			
Awareness	Between Groups	7.827	2	3.913	2.590	.076
	Within Groups	568.205	376	1.511		
	Total	576.032	378			



Covering medical costs	Between Groups	23.453	2	11.726	13.537	.000
	Within Groups	325.719	376	.866		
	Total	349.172	378			
Tax benefits	Between Groups	6.375	2	3.187	3.579	.029
	Within Groups	334.813	376	.890		
	Total	341.187	378			

Source: Primary Data

The output Table shows that the significance value of the ANOVA test for the features of health insurance plan motivated the purchase of health insurance policy among the respondents of different experience categories. The p values of Security, Risk cover, Covering medical costs, tax benefits are lower than the level of .05, we had set. Therefore we reject the null hypothesis at a significance level of 5% and conclude that there is significant difference among the employee experience and the features of health insurance plan (Security, Risk cover, Covering

medical costs, tax benefits) that motivated to purchase health insurance policy.

H0: There is no significant difference between annual income of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.

H1: There is significant difference between annual income of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.

**Table: 16 Result of ANOVA
Features of Health insurance Plans * Annual Income**

		Sum of Squares	Df	Mean Square	F	Sig.
Security	Between Groups	4.772	4	1.193	.910	.458
	Within Groups	490.526	374	1.312		
	Total	495.298	378			
Risk cover	Between Groups	22.868	4	5.717	3.533	.008
	Within Groups	605.290	374	1.618		
	Total	628.158	378			
Awareness	Between Groups	118.910	4	29.728	24.322	.000
	Within Groups	457.122	374	1.222		
	Total	576.032	378			
Covering medical costs	Between Groups	4.324	4	1.081	1.172	.323
	Within Groups	344.848	374	.922		
	Total	349.172	378			
Tax benefits	Between Groups	15.445	4	3.861	4.433	.002
	Within Groups	325.742	374	.871		
	Total	341.187	378			

Source: Primary data

The output Table shows that the significance value of the ANOVA test for the features of health insurance plan motivated the purchase of health insurance policy among different annual income groups. The p values of Risk cover, Awareness, tax benefits are lower than the level of .05, we had set. Therefore we reject the null hypothesis at a significance level of 5% and conclude that there is significant difference among different annual income

groups and the features of health insurance plan (Risk cover, Awareness, tax benefits) that motivated to purchase health insurance policy.

H0: There is no significant difference between the number of earning members in the family of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.



H1: There is significant difference between the number of earning members in the family of the respondents regarding the features of health

insurance plan that motivated the purchase of health insurance policy.

Table: 17 Result of ANOVA
Features of Health insurance Plans * Number of Earning Members

		Sum of Squares	Df	Mean Square	F	Sig.
Security	Between Groups	23.149	4	5.787	4.584	.001
	Within Groups	472.149	374	1.262		
	Total	495.298	378			
Risk cover	Between Groups	75.231	4	18.808	12.722	.000
	Within Groups	552.927	374	1.478		
	Total	628.158	378			
Awareness	Between Groups	30.142	4	7.535	5.163	.000
	Within Groups	545.890	374	1.460		
	Total	576.032	378			
Covering medical costs	Between Groups	25.183	4	6.296	7.268	.000
	Within Groups	323.988	374	.866		
	Total	349.172	378			
Tax benefits	Between Groups	11.783	4	2.946	3.345	.010
	Within Groups	329.404	374	.881		
	Total	341.187	378			

Source: Primary Data

The output Table shows that the significance value of the ANOVA test for the features of health insurance plan motivated the purchase of health insurance policy among the respondents having different number of earning members in their family. The p values of all the features of health insurance plan are lower than the level of .05, we had set. Therefore we reject the null hypothesis at a significance level of 5% and conclude that there is significant difference among different number of earning member groups and the various features of

health insurance plan that motivated to purchase health insurance policy.

H0: There is no significant difference between the number of dependents in the family of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.

H1: There is significant difference between the number of dependents in the family of the respondents regarding the features of health insurance plan that motivated the purchase of health insurance policy.

Table: 18 Result of ANOVA
Features of Health insurance Plans * Number of Dependents

		Sum of Squares	df	Mean Square	F	Sig.
Security	Between Groups	8.501	4	2.125	1.633	.165
	Within Groups	486.797	374	1.302		
	Total	495.298	378			
Risk cover	Between Groups	33.630	4	8.408	5.289	.000
	Within Groups	594.528	374	1.590		
	Total	628.158	378			



Awareness	Between Groups	126.875	4	31.719	26.411	.000
	Within Groups	449.157	374	1.201		
	Total	576.032	378			
Covering medical costs	Between Groups	13.576	4	3.394	3.782	.005
	Within Groups	335.596	374	.897		
	Total	349.172	378			
Tax benefits	Between Groups	13.919	4	3.480	3.977	.004
	Within Groups	327.269	374	.875		
	Total	341.187	378			

Source: Primary Data

The output Table shows that the significance value of the ANOVA test for the features of health insurance plan motivated the purchase of health insurance policy among the respondents having different number of dependents category. The p values of all the features of health insurance plan except Security are lower than the level of .05, we had set. Therefore we reject the null hypothesis at a significance level of 5% and conclude that there is significant difference among different number of dependents and the various features of health insurance plan (except Security) that motivated to purchase health insurance policy.

5. MARKETING IMPLICATIONS

- Though consumers rate overall awareness to be good, there is a sizable group that is not familiar with health insurance schemes and its benefits. With wide reach of news papers in the state and print medium communication being rated by consumers as the most important source of information on health insurance, marketers and organizations interested in health insurance promotion should focus on print advertising and periodic publication of relevant articles on health insurance that can enhance awareness on various aspects of health insurance and create favourable response.
- The younger age group have been mostly keeping away from health insurance due to perception of less need and the observation is that the existing consumer grouping tilted more towards the elderly, which is also a vulnerable group in terms of health issues and hospitalization. This has resulted in high claim-premium ratio and result in loss in health insurance market. To the consumer, the impact is a higher premium rate. Bringing younger age group to more coverage and spreading the health insurance spectrum are to be focus areas of activity for marketing.
- While analyzing the reasons for not taking health insurance, it is found that a large number of consumers feel health insurance does not provide much returns for the investments made and on the

other hand, the reason for taking health insurance cited by majority of respondents is to cover major expenses and protection from rising cost of health care. It is found in studies on advertising impact in insurance marketing that negatively framed advertising, highlighting risk factors has high impact, especially among lesser educated groups. Marketing organizations and companies may use the advertisements focusing risk and risk coverage as a major area to create awareness and enhance purchase intention in marketing leading to more sale.

6. CONCLUSION

From the study it has been inferred that purchase preferences among health insurance policy holders have important socio-economic implications. Covering medical cost is considered as the most important factor that leads to the purchase of health insurance policies. Security and Tax benefits are the other important factors that motivated to purchase health insurance policy. Health insurance is an important form of insurance and essential for every individual. Health insurance penetration in India is very low as compare to developed nation where almost all the lives are covered and stage of saturation has been reached. Customers are the real pillar of the success of health insurance business and thus it is important to know the various factors that motivated to purchase health insurance. There are many factors which affect customer's purchase decision of health insurance and from the study it has been concluded that socio- economic and demographic factors of the people play a major and pivotal role in deciding the purchase of health insurance policies.

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LEADERSHIP CHALLENGES AND LABOUR PERFORMANCE IN ORGANIZATIONS. A STUDY OF NIGERIA LABOUR CONGRESS (NLC) (2015-2019)

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ABSTRACT

The role of labour unions in organizational performance cannot be undermined. It's on this premise that Nigeria Labour Congress (NLC) was established. The history of a great organization is linked to purposeful leadership. Leadership is the capacity in a person or in a group of persons to inspire confidence and thereby regard for himself or themselves to guide and govern the followers. Such leaders have played significant roles in the socio-economic development of their union. One of the major issues facing NLC and has greatly hampered the organizational performance is the burning issue of leadership due to lack of public trust, corruption, political interference, incompetency, lack of transparency as well as accountability. Union Leadership at both Federal, State and Local level lack the needed skills, integrity and intellectual openness to motivate and lead increasingly diverse and independent teams. These in adversely affect their performance and effectiveness and defeated the purpose of the union. To give this work a scientific base, the study adopted transformation leadership theory as a theoretical framework. The methodology adopted in this study is qualitative and descriptive and data were drawn from secondary sources with the aid of text book, Journals, Newspaper, Internet, and other scholarly work related to the topic under study. The major findings of the study revealed among others that (i) the nature of NLC leadership is problematic as most of them lacked control of effective leadership style in managing the affairs of the union. This led to the scramble for union resources to suit their personal desires. (ii) The leadership questions in NLC is as a result of political interference by government official. This affects the leadership performance as labour members are not given a free hands in deciding on their affairs as well as whom to pilot the affairs of the union at both National, state and local levels. Based on the above findings, the study recommended among others that enabling environment should be provided by the government in order to enhance union's performance in Nigeria. (ii) The NLC leadership at all levels should disassociate themselves from political activities to avoid political interference. This will help to reshape the union and enable them to take an independent decision on the issue affecting the union and their members in any organization.

KEYWORDS: Leadership, Leadership Challenges Labour Performance and Organizations.



INTRODUCTION

Leadership has been in existence since the creation of mankind and is being applied up to the present time. It is considered a very important, an almost magical variable in enhancing management capacity, in providing higher quality goods and services, in providing higher levels of satisfaction among employees, and in improving organizational performance. The extent to which members of an organization contribute in harnessing the resources of the organization equally depends on how well the managers (leaders) of the organization understand and adopt appropriate leadership style in performing their roles as managers and leaders.

Leadership is a term that has obsessed management scholars, political leaders, intellectuals and policy makers for many decades. Leadership refers to the process of persuasion or example by which an individual induces a group to pursue objectives held by the leader or shared by the leader and his or her followers. It is therefore, a process of social influence by which a person influences others to accomplish an objective and directs the organization in a way that makes it more cohesive and coherent. According to Parris and Peachey (2013: 377), “a great leaders create a vision for an organization, articulate the vision to the followers, build a shared vision, craft a path to achieve the vision and guide the organization into a new direction.

The ability for any organized groups to achieve its goals and objectives depend largely on the caliber of its human resources and more importantly on how they are effectively managed. This will no doubt be reflected in the level of services offered. One of the major issues facing organized unions and has greatly hampered the organizational performance globally is the burning issue of leadership. In the history of Nigeria, there has been ongoing unresolved industrial disputes due to leadership problem. This has fuelled spate of dispute as well as exacerbated the nature of labour disputes. These leadership challenges are evidenced in political, social and economic instability and the prevalence of ethnic, communal and religious crises, which have bedeviled Nigerian socio economic development.

The history of Nigeria follows a shadow of inept leadership that has appropriated power for the furtherance of its agenda leaving out other stakeholders in governance (Ubeku, 1983). This is why leadership has been reduced to mere the-killer-takes-it all kind of game. In view of this ugly experience, in Nigeria the

focus of leadership became parochial and with the overriding consideration for personal survival rather than national interest. Attempts at providing “democratic consolidation” were hampered by the personality cult of the emerging political gladiators who exploited the instrument of state power to promote their personal agenda” (Fagbadebo, 2009).

In assessing the leadership situation in Nigeria, Adejimi (2005), indicated that most of the policy makers as well as those involved in decision making process are engaged in bribery, egoism, power, and trade liberalization. They are distracted to an extent that they forget the nation’s policies aimed at improving the lives of people in the society. In recent times, many organizations in the Nigerian public sector have recorded cases of low productivity and unethical administrative practices, problems of finance, mismanagement and lack of motivation due to leadership challenges. It is observed that the absence of effective leadership is a serious problem endemic in many organizations and the resultant outcome is poor organizational performance.

Labour is the collection of the entire individual efforts, both physical and mental exertion bringing into play for the production of goods and services. A collection of the total workforce in a work place, where efforts are exerted for the purpose of producing products and services with a view to satisfy customers in order to meet or realize the objectives of an organization (Fajana, 2006). Traditionally, trade unions are formed to champion and protect the interests as well as welfare of workers or suppliers of labour. Hence the labour movement in Nigeria grew out of this inspiration. The movement took-off some decades ago as a result of struggle for the welfare of organization’s employees as well as to ensure an egalitarian society, and social equality. They fought to championed the cause of workers’ safety in an organization where there are unfavorable working conditions, and fought against policies that are inimical to the interest and welfare of workers in a work place through arbitration, conciliation, mediation, negotiation, bargaining, dialogue as well as strike action.

The need to protect and promote the welfare of workers necessitated the establishment of the International Labour Organization to give backing to unionism the world over. It was against this backdrop that the Nigeria Labour Congress (NLC) was founded as the umbrella body of the Nigerian workers. Just like labour organizations in other societies, the NLC has



had its unfair share in industrial conflicts, ending in strikes of varying magnitude with harrowing consequences, yet workplace justice is not achieved.

The history of Nigeria's trade union could be traced to the period when Lagos Colony was formally considered as a British colony and the events that followed in the wake of this. What followed was the substitution of slavery, which was considered illegitimate and forceful trade of human, for legitimate trade that gave birth to urban labour force. However, formalized Nigerian trade union started in 1912 with the formation of Civil Service Union (Fajana, 2006).

In a nutshell, the success of Nigerian Labour Congress (NLC) depends on effective leadership and efficient organizational cultural practices. The Nigeria Labour Congress being a major stakeholder as regards the workers welfare management in the country have been undermined. Practically, the purpose of establishing Nigeria Labour Congress has been defeated as the union leadership has been politicized by towing the line of government in power, working according to its whim and caprices at the expense of the union interest. This in turn led to incompetency as most NLC leadership lack the required skill to carry out their constitutional required responsibility. Other challenges face by the organized union includes Political and socio-economic changes, Conflict in bargaining, Dissolution of the NLC Leadership by the Various Nigerian Governments, the Use of Draconian Rules to Checkmate the Activities of the NLC, as well as Lack of internal democracy among others.

Constant strikes by the NLC resulting from disagreement with government on labour and national issues (especially deregulation) affects the pace of development of the country as many development projects by government and non-governmental organizations are usually put on hold during such strikes. It affects long term partnership and positive communication between labour, unions and government, and breeds distrust among the parties involved (Aspinall, 2007).

However, observers in the nation's economy have warned that Nigeria's chance of catching up with the globalized society is being hampered by the persistent strikes in the country. They argue that the impact of strikes on a third world nation like Nigeria would not only devalue her economic system but also impair her social relationship with other economies.

It is against this background that this study seeks to examine leadership challenges and organizational performance with specific emphasis on

the Nigeria Labour Congress, using Akwa Ibom State chapter as a case study.

STATEMENT OF PROBLEM

Effective leadership is a unique way of integrating employees with the organization to achieve its vision and objectives. The quality of leadership usually determines the fate of any society. History and experience suggests that leadership is very important to the success of a group or community as a whole and to the success of the individuals within the group. Studies show that 80% of problems experienced in any society and organization are people related. With good leadership, there are more strategies in-addition to operational roles, more qualified and developed people, more qualified stronger leaders coming through the ranks.

Most importantly, trade unions are formed to champion and protect the interests of workers. The trouble with Nigeria Labour Congress is simply and squarely a failure of leadership. There is nothing basically wrong with the Union system in operation. The nature of union leadership became a problem as most of them lacked good leadership qualities. This led to the scramble for changes in leadership to suit their personal desires.

Nevertheless, in view of this harrowing experience in Nigeria, the focus of leadership became parochial and with the overriding consideration for personal survival rather than national interest. To further lend credence to this position, several attempts at providing "political transition and democratic consolidation" were hampered by the personality cult of the emerging political gladiators who exploited the instrument of state power to promote their personal agenda". With above in mind, virtually all strata of Nigeria's leadership are affected by parochial and ineptitude. This ugly development has shaped and portray leadership pattern in Nigeria in bad lights of which NLC is not an exception when compares with their counterpart in Western countries.

It is observed that performance in the Nigeria Labour Congress is deteriorating. Leadership in the Nigeria Labour should be such that have the skills, ability, commitment, competent technical know-how and what is required to help find solutions to union problems. But conversely, the major pitfall in Nigeria Labour Congress today are the lack of public trust, corruption, political interference, incompetent leadership, and lack of transparency and accountability etc. The union Leaderships lacks the needed



administrative ingenuities, integrity and intellectual openness to motivate and lead increasingly diverse and independent teams. The task of meeting deadlines, being proactive and efficient in actual work situations as well as achieving performance has been a point of public concern.

It is on this premise that this research work seeks to examine leadership challenges and Labour performance in Organizations using Nigeria Labour Congress, Akwa Ibom State Chapter as a reference point.

Theoretical Framework

The paper adopted Transformational Leadership Theory as a theoretical framework. Transformational Leadership theory is an integral part of the full range leadership model developed by Burns in 1978 and later expanded by Bass (1985), to help explain how transformational leadership could be measured, as well as how it impacts follower motivation and performance. The theory distinguishes itself from the rest of the previous and contemporary theories, on the basis of its alignment to a greater good as it entails involvement of the followers in processes or activities related to personal factor towards the organization and a course that will yield certain superior social dividend.

Transformation leadership is a theory of leadership where a leader works with teams to identify needed change, creating a vision to guide the change in tandem with committed members of a group. The theory further explain the extent to which a leader is transformational, is measured first, in terms of his influence on the followers. The followers of such a leader feel trust, admiration, loyalty and respect for the leader. These outcome occurs because the transformational leader offers followers with an aspiring mission and vision and necessary mechanism needed for the job well done. The transformational leader motivates by making follower more aware of the importance of task outcomes, inducing them to transcend their own self-interest for the sake of the organization or team and activating their higher-order needs. He encourages followers to think critically and seek new ways to approach their jobs, resulting in intellectual stimulation.

The key to the Transformational Leadership Theory is the ability of the leader to motivate followers to accomplish change. Followers become motivated when confidence is increased and the value of work-related outcomes is elevated. Transformational leadership behaviors contribute to followers'

satisfaction, increased performance and productivity, and achievement beyond expectations. Dissatisfaction and decreased productivity occurs when followers have transcended the developmental level of the leader and are searching for a leader with the ability to integrate values and provide an objective view of interpersonal commitments.

In the light of the above theory, leaders who possess the transformational attributes understand administrative leadership practices in NLC and are highly admired, respected, trusted, and have a high level of self-confidence, self-esteem, and self-determination. They are usually regarded as role models and demonstrate high standards of ethical and moral conduct. The leader will inspirationally stimulate and inspire employees and colleagues by building self-assurance, feeling and arousing enthusiasm and determination in the commission. As a result, the employees are empowered to discover, examine and resolve problems with a more liberated thought in order to survive rapidly changing organizational environment.

The current environment characterized by uncertainty, global turbulence, and organizational instability calls for transformational leadership in NLC to prevail at all chapters. This entails moving the Labour leadership practices to higher and better leadership qualities where public union will come before personal gains. The level of productivity of the Workers in Nigeria Labour Congress has for long attracted the attention of the union leader who desire to improve performance. Unfortunately, despite several empirical studies on how to improve labour performance in Nigeria, the Union is still facing with the problem of inefficiency and ineffectiveness of leaders. The performance in the Nigeria Labour Congress is retarding. Leadership in the Nigeria Labour today lack public trust, transparency and competent. The task of meeting deadline, being proactive and efficient in their task and work situations have been a point of public concern due to their incompetency in leadership. This call for a total restructuring of NLC leadership structure at all level to ensure efficiency and productivity.

CONCEPTUAL CLARIFICATION

Concept of Leadership

There is no universal acceptable meaning of what constitutes leadership among scholars and writers in the field of social and management sciences. Leadership is a term that has obsessed management



scholars, political leaders, intellectuals and policy makers for many decades. No matter the amount of definitions that have been proffered, leadership is about motivating, inspiring and making people to act or behave in a way they would not have done. According to Bennis and Nanus (2007), it is a word on everybody's lips, meaning that it is a subject of concern to all as it affects virtually everything that we do. Because of the manifestation of the term leadership in almost all that humanity does, it has been given diverse meanings (Senior & Swailes, 2010).

In the view of Armstrong (2009:376) leadership "is the process of inspiring people to do their best to achieve a desired result. It can also be defined as the ability to persuade others willingly. Leaders and their groups are therefore interdependent". Following from the above, we are concerned with a style of leadership that underscores democratic order, which is crucial for empowering trade unions in Nigeria.

The above point brings to mind the different types of leadership styles. As enunciated by Lewin (1948), they include the following: democratic, *laissez faire* and autocratic leadership. Over the years, leadership styles have been framed in relation to theories of leadership, leadership traits/ behaviors and persuasions/approaches to leadership as well as contingency postulation about leadership.

Leadership Challenges

Leadership challenge has been viewed in different ways among scholars in the field of management science. Okejie (2011), sees leadership challenge as any threat encountered by a leader or a manager in the process of running the day to day operations of an organization. As indicated by James and Barry (2012), leadership challenge includes all those hindrances involved in the process of a leader or a manager trying to mobilize others to make extraordinary things happen in an organization. It is about the practices, skills leaders use to transform value in to action, risk into rewards separateness into solidarity.

Leadership entails the implementation of organizational goals, objectives and upholding group standard. Any less of these is a leadership challenge. The ability to effectively represent an organization and act as a protection of its member is another aspect of leadership challenge.

Labour performance

Several attempts have been made to conceptualize labour performance base on view point

of scholars, colored by their experience, environment and prevailing political ideologies. According to Swanson (2007), Labour performance is a term used to represent the collective members of all employees in an organization represented by labour union and the extent to which they have successfully carried out their task. Okhaide, (2019), sees labour performance as the capacity of labour union to successfully communicate with employers of an organization on behalf of employees with positive outcome.

Labour union which is often used interchangeably with Nigeria labour congress is an organization formed by workers from related field that works for the common interest of its members. They help workers on issues relating to fairness of payment, good working environment, hours of work and benefits. The extent to which these set goals are met determine their Labour performance.

NIGERIA LABOUR CONGRESS (COMPONENTS OF NLC)

Nigeria Labour congress (NLC) is an umbrella Organization for trade unions In Nigeria. It was founded in (1978) following a merger of four different Organizations:

- i. Nigeria Trade Union Congress(NTUC)
- ii. Labour unity front(LUF)
- iii. United Labour Congress(ULC)
- iv. Nigeria Workers Council (NWC).

The Numerous affiliated unions and components of Nigeria Labour Congress were restricted into (43) industrial trade unions as listed below:

1. Academic Staff Unions of University (ASUU)
2. Academic Staff Union of Polytechnic (ASUP)
3. Agriculture and Allied Employees of Nigeria (AAEUN)
4. Academic Staff Union of Research Institutes
5. Association of Senior Staff of Banks, Insurance and Financial Institute (ASSBIFI)
6. Amalgamated Union of Public Corporation, Civil Service Technical and Recreational Services Employees (AUPCTRE)
7. Colleges of Education Academic Staff Union (CEOASU).
8. Iron & Steel Senior Staff Association of Nigeria
9. Judicial Staff Union of Nigeria (JUSUN)
10. Medical and Health workers Union of Nigeria (MHWUN)
11. Metal Products Senior Staff Association of Nigeria (MEPROSSAN)



12. National Association of Academic Technologists (NAAT).
13. National Association of Nigeria Nurses and Midwives.
14. National Union of Banks, Insurance and Financial Institution Employee.
15. National Union of Chemical, Footwear, Rubber, Leather and Non-Metallic Employee (NUCFLANMPE).
16. National Union of Civil Engineering, Construction, Furniture and Wood Workers (NUCECFWW).
17. National Union of Electricity Employee of Nigeria(NUEEN)
18. National union of Food, Beverage and Tobacco Employees of Nigeria (NUFBTEN)
19. National Union of Hotels and Personal Services Workers of Nigeria(NUHPSWN)
20. National Union of Petroleum and Natural Gas(NUPENG)
21. National Union of parts and Telecommunication Employees (NUPTE).
22. National Union of Road Transport Workers (NURTW).
23. National Union of Printing, Publishing and paper products workers (NUPPPPW).
24. National Union of Lottery Agents and Employees NULAE).
25. National Union of Shop and Distributive Employees (NUSDE)
26. National Union of Textile, Garment and Tailoring Workers of Nigeria (NUTGTWN)
27. Nigeria Civil Service Union(NCSU)
28. Nigeria Union of Civil Service Secretariat Stenographic Workers (NUCSSSW)
29. Nigeria Union of Journalist (NUJ)
30. Nigeria Union of Local Government Employees (NULGE)
31. Nigeria Union of Pensioners (NUP)
32. Nigeria Union of Railway men (NURM)
33. Nigeria Unions of Teachers (NUT)
34. Nigeria Welders and Fitters Association (NIWELFA)
35. Non-Academic Staff Union of Educational and Associated Institutions (NASUEAI)
36. Parliamentary Staff Association of Nigeria (PSAN)
37. Radio, Television and Theatre Workers Union of Nigeria (RATTAWU).
38. Senior Staff Association of Nigeria Polytechnic (SSANIP)
39. Senior Staff Association of Nigeria University (SSANU)
40. Steer & Engineering Workers Union of Nigeria (SEWUN)
41. Nigeria Union of Mine Workers (MUMW).
42. Maritime Workers Union of Nigeria (MWUN)

Nigeria Labour Congress (NLC) President from 1999 to2020

S/N	NAMES	POSITION	DATE
1.	Comrade Adams Oshiomhole	NLC President	1999-2007
2.	Addulwahed Ibrahim Omar	NLC President	2007-2011
3.	Ayuba Wabba	NLC President	2015-2020

Source: Nigeria Labour Congress 2020

HISTORY OF THE NIGERIA LABOUR CONGRESS

The Nigeria Labour Congress (NLC) was founded in 1978. It consists of four unions merged

together. They are Nigeria Trade Union Congress, Labour Unity Front, United Labour Congress and Nigeria Workers Council. The NLC has a total of 42 individual unions. Its motto is “Labour creates wealth”. Currently, Comrade Ayuba Wabba is its current national president.



The NLC is the umbrella body under which all trade unions in Nigeria are located. The congress is the body that champions labour activism as well as wages, pursuing industrial course in order to improve the conditions of workers and to agitate for their rights. Since its inception, NLC has been under serious contest with Nigeria's federal government as it dialogues with the government for better working conditions of all employees. In establishing the philosophy behind NLC, its former president, Adams Oshiomole, states categorically the rationale behind forming NLC:

“No one must continue to sit on the fence or else the fence must collapse.

People must ask questions and insist that political leaders must give account of their stewardship because the people must get a feedback. They must ensure that programmes of government are followed in the interest of the people”

(Alalade, 2004, p. 202-1).

Thus, for stronger workers' rights as well as for consolidating Nigeria's recent democratic wave, empowered trade union is required to bring this to fruition. This will help shape leadership in the nation, which has been under the shadow of leadership ineptitude and lingering dispute between the state and trade unions.



Source: Workers Day 2020.

OBJECTIVES OF NIGERIA LABOUR CONGRESS (NLC)

The major objective of the NLC is to protect, defend and promote the rights, well-being and interests of all workers, pensioners and trade unions. Other objectives include the following:

- i. To continually promote, defend and advance the economic, political and social well-being of Nigerian workers.
- ii. To promote and defend the rights, well-being and interests of workers in the work-place and society.
- iii. To promote and defend the rights, well-being and interest of pensioners and ensure their recognition by the Society.
- iv. To continually enhance the quality of life and improve the income and other working conditions of workers.
- v. To promote and sustain the unity of Nigerian trade unions, ensure total unionization of all workers irrespective of their creed, state of origin, gender and their political beliefs.
- vi. To ensure the existence of one trade union and one federation of trade unions in every industry.
- vii. To promote and defend trade union and human rights, the rule of law and democratic governance.



- viii. To promote and defend democracy; probity and transparency in the trade unions and in civil governance.
- ix. To work for the industrialization and prosperity of the Nigerian nation and ensure protection of jobs, full employment and humane working environment.
- x. To continually strive to influence public corporate policies and legislation on all issues at all levels, in the interest of workers, disadvantaged social groups and trade unions.
- xi. To establish relationship and co-operation with labour movements the world over.
- xii. To play a cardinal role in African Trade Union Movement OATUU and the sub-region OTUWA.
- xiii. To continually promote workers education, principally for developing their trade union and social consciousness and for the empowerment of workers in the Nigerian society.
- xiv. To promote and sustain positive industrial relations practice in Nigeria, by strengthening collective bargaining in all sectors of the economy and internalizing appropriate work culture among workers.
- xv. To ensure viable financial base for the congress and the trade unions by engaging in profitable business ventures, etc., jointly or severally owned with other establishments and these include right to own property, mortgage and disposal of same for the purpose of the attainment of the aims and objectives of the Congress and the trade unions.

PROBLEMS OF NIGERIA LABOUR CONGRESS

Despite the achievements of Nigeria Labour Congress, the NLC has been face with several challenges over the years, most of which are.

1. Dissolution of the NLC Leadership by the Various Nigerian Governments

One of the problem facing The Nigeria Labour Congress is that of dissolution of her leadership by the political class for their selfish reasons. For example the NLC gas leadership has survived the dissolution of its leadership hierarchy on two occasions. The first occasion was on February 1988, when it was dissolved by the head of the Federal Military Government, General Ibrahim Babangida.

This dissolution lasted ten months. During this period, the NLC was placed under the control of a sole administrator.

The second attempt was in 1994. At that time, General Sanni Abacha was the head of the Federal Military Government. He dissolved the NLC for four years and placed it under the control of a sole administrator. These instances of dissolution were achieved by using executive fiat and draconian laws.

2. Harassment of NLC leadership by the Nigerian Government

The Nigerian government had on several occasions harassed the NLC leadership. Most time government do deployed security men to disperse the NLC officials from pressing home their demands during peaceful protests. The state security agents do disrupt NLC meetings, congresses and seminars. Most time the NLC officials are arrested and detained unlawfully.

3. The Use of Draconian Rules to Checkmate the Activities of the NLC

Draconian laws are used by the government to Checkmate the NLC leadership and its affiliates. The laws empowered the government to embark on anti-Labour campaigns against the NLC. These laws are also used by the government and its affiliate to ban NLC activities that is contrary to government interest. This affects NLC performance and effectiveness.

4. Conflict in bargaining

The effectiveness of labour movement is in bargaining for workers' condition of service, sometime, when the organization breached the agreement reached with the labour leaders in respect to workers' interest, the workers will embark on strike action. Sometimes the conflict is as a result of the organization's executives thinking that keeping to the agreement will mean treating them (the workers) as equal or the co-owners of the business.

5. Lack of Accountability and Transparency

Nigerian leaders abuse public office for private gain. Transparency and accountability are absent in leadership of NLC. An accountable government is one that is responsive to the demands of the citizen. However, the leadership of NLC. Akwa Ibom State Chapter has not done well in this regard due to political interference by the government. The Leadership of NLC has been corruption at all levels. And this corruption is not unconnected with profuse index of weak accountability and lack of transparency. This contributed immensely to their poor performance.



6. Corruption

Although corruption is a global challenge, Nigeria appears to suffer greatly from this menace. Every one appears to believe that the nation has a culture of corruption. Hence the leadership of Nigeria Labour Congress is deeply entrenched in corrupt practices. The union leadership and their cohorts have simply privatized the union for their selfish interest. Leadership of the union over time is marked by parochial, personalized and selfish tendencies, political brigandage, ethnic rivalry and cleavages, clientelism and privatized state apparatuses.

Nigerian government detest the NLC from its insistence on doing things properly and fighting for the rights of Nigerians. Hence, the government bribes the NLC leaders with Brown envelopes. This done to keep the congress quiet and to ensure that the union cannot fight the government in unity. Consequently, the compromised leaders can no longer fight the government for its obnoxious economic policies. This affect their performance and activeness in the society.

7. Lack of Funds

Every organization needs funds to carry out its functions effectively. The NLC is not an exception. Often, it is confronted with the problem of paucity of funds. Often times because of paucity of funds, the NLC leaders are predisposed to being influenced by those who are not part of the employees. When this happens, their integrity is compromised. The interest of the workers they sought to protect becomes threatened.

8. Lack of Internal Democracy

Democracy been the government by the majority has been bastardize. Like every other organization, the NLC also faces the problem of entrench internal democracy. This is because there is a bitter struggle for power and supremacy in the congress. Power play and supremacy battle causes conflict which leads to 'fictionalization' within the congress.

9. Lack of Required Skills and techniques to perform their Responsibilities

Labour leaders lack the required leadership skills to perform their constitutional assigned functions effectively. Most Labour leaders are not properly trained to manage labour crises. Majority of them have poor bargaining and negotiating skills. These deficiencies also place the workers at a disadvantage. Workers are therefore treated as slaves because they do not have leaders who can negotiate on their behalf.

10. Poor Remuneration

Good remuneration is one of the factor that motivate workers morale's to work. Labour leaders are poorly

paid. There are no special perks associated with leadership positions in the NLC. Most organizations they work for pay them poorly. In some instances, they are not even paid at all.

CONCLUSIONS

Leadership questions has become a major challenge in NLC. The effectiveness of any organization depend solely on the leadership quality and style. The failure of most organizations today is ascribe to poor leadership, which Nigerian Labour Congress is not an exception. The trouble with Nigeria Labour Congress is simply and squarely a failure of leadership. There is nothing basically wrong with the Union system in operation. The nature of union leadership became a problem as most of them lacked control and effective leadership qualities required. This led to the scramble for changes in leadership to suit their personal desires. Labour movement in Nigeria needs a radical approach in their leadership style to remain a formidable organized workers' group that defends the right of workers in a work place. This will help to determine her future challenges. Labour leaders must return to its radical approach in their struggle for justice and equality in the place of work. More so, they should also adhere to democratic tenets in their operations. Policies that will make effective reconciliation among aggrieved workers be put in place. This is because recognizing the power of organized labour can make the labour movement in Nigeria regain its lost glory and remain in high state of performance.

RECOMMENDATIONS

1. The NLC should develop policies that would strengthen the leadership skills and competencies of all levels of leadership in the NLC.
2. The NLC leadership must review its constitution with the aim of restructuring its body to internalize democratic practices.
3. The government should make provision for more enabling environment to engage with trade unions. This will improve relations between government and trade unions as well as ensuring more inclusive way of engagement and effectiveness in implementation of programmes.
4. To ensure efficiency and effectiveness, the NLC should disassociate its self from political activities to avoid their leadership



being control by the political class. The organized labour should elect those with good leadership qualities to the helm of its affairs. Elections should be done on merit rather than ethnic, tribalism, and primordial sentiments.

5. Frequent seminars, workshop, training courses as well as supervision etc should organized for labour leaders in order to broaden their mine on effective leadership styles.

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MORPHO-BIOLOGICAL FEATURES AND PRODUCTIVITY OF THE ARTICHOKE IN THE CONDITIONS OF THE SOUTH OF UZBEKISTAN

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ABSTRACT

The article is dedicated to the results of research on the introduction of artichoke in the conditions of Uzbekistan. It was revealed that artichoke plants grow and develop well, form mature seeds during the growing season. The manifestation of morphobiological and farm-valuable traits largely depends on the age of the plants. A significant reduction in the growth period, an increase in plant height and number of stems, an increase in average weight and number of inflorescences and, ultimately, the yield occur in the second year of plant life. It was also determined that the potential productivity of artichoke plants in the condition of Uzbekistan is very high. The yield of the cultivar Krasavets is 55.5 t/ha in the second year of life, for the Green Globe cultivar – 39.2 t/ha. This is significantly higher worldwide.

During the research, some issues of artichoke seed production in the dry subtropics of Uzbekistan were also studied. The studies were carried out on the cultivar Krasavets. When identifying the most effective method of forming a seed cluster, we compared the cultivation of seed plants without formation and 4 methods of formation: 1 stem per plant and three inflorescences per stem, 2 stems per plant and three inflorescences each, 3 stems per plant and three inflorescences each, 4 stems per plant and three inflorescences each. The highest seed productivity was noted in the variant without the formation of a seed plant: 734.2 g/plant or 15789 seeds/plant. However, in terms of such indicators as the mass and number of seeds from one inflorescence, the mass of 1000 seeds of a plant without formation is significantly inferior to other options. Based on the results of experience, the variants 3, 4, 5 can be considered appropriate to use in artichoke seed production.

KEYWORDS: artichoke, phenology, inflorescence, productivity, mass and number of inflorescences, interphase periods, growing season, plant height, seed production.

INTRODUCTION

Artichoke (*Cynara cardunculus* L. subsp. *scolymus* (L.) Hayek.) is native to Mediterranean, where its wild population is still occupy vast area. Since the XVI - XVII centuries, the artichoke has been cultivated in all Mediterranean countries [1, 2].

Artichoke is a plant of the Asteraceae family, widespread in almost all Mediterranean countries, as

well as in France, Spain, the USA, Canada, Argentina and so on. It is cultivated in the southern regions of Russia - in the Krasnodar territory and in the North Caucasus [2].

According to the data of FAO, in 2013 the artichoke sown area in the world amounted to 0.131 million hectares, the average yield was 13.72 t/ha, and the volume of gross production reached 1.793 million



tons. Large artichoke producers are Italy – 0.548 million tons, Egypt – 0.391 million tons, Spain – 0.200 million tons, Peru – 0.113 million tons, Argentina – 0.106 million tons [3].

The highest yield was recorded in Argentina (24.93 t/ha), Egypt (24.10 t/ha), Cyprus (20.60 t/ha), Kazakhstan (20.0 t/ha), Peru (19.30 t/ha). California is the main artichoke producer in the United States.

In European countries, a lot of attention is paid to breeding, seed production, genetics, the development of advanced technologies for growing artichoke. In 2008, a project was launched called "European genetic resources of *Cynara* ssp." [4]. The project coordinated by the University of Tuscia (Italy) has 7 partners - three Italian (Tuscia University, CNP, ENEA), two French (BBV, GEVES) and two Spanish (Cartagena University, ITGA). The project conducts research in five areas:

1. collection of germplasm and rationalization of collection;
2. preservation of plants and DNA and their reproduction;
3. evaluation and characterization of germplasm;
4. an interactive web catalog of documentation;
5. Cynares network implementation and actions.

Only in the first area under the leadership of Dc. Macua (ITGA), 196 lines of artichoke, 34 samples of cardoon and 55 samples of wild cardoon were collected.

Much of the research on artichoke, cardoon and their wild relatives is carried out in accordance with this project.

To coordinate the work of scientists, artichoke producers and to solve the problem of this culture, the symposia are held in different countries of the world every 3 years.

The Seventh International Symposium on artichoke, cardoon and their wild congeners was held from 16 to 19 June in 2009 in the small town of Plouenan, near Saint-Pol-de-Leon, Brittany, France.

The choice of the venue for the symposium is not accidental, since 1890 Saint-Pol-de-Leon has been the largest center for the production of artichoke (70%) and cauliflower (90%) in France [5].

The IX-Symposium was held in 2015 in Argentina, the X-in 2019 in Spain. From the analysis of the works presented at these symposia, it follows that the selection work is most intensively carried out with an artichoke of the Romanesco type. The joint work of scientists from Italy, Spain and the USA made it possible to obtain promising F₁ hybrids on the basis of male sterility, the maintenance of which does not require biotechnological methods.

The artichoke is a dietary vegetable. It contains protein, carbohydrates, vitamins A, B, P, cynarin, inulin, fiber and other elements necessary for the human body. The use of artichoke in cooking is very varied: it is served both as a main dish and as a side dish. Pizza and salads are made from it, added to pies and bread. Some restaurants make desserts from it [6].

As a vegetable, ornamental, fodder, melliferous and medicinal plant, the artichoke is of great interest as a potential introducer in the conditions of Uzbekistan.

Previously, studies were carried out on two cultivars of artichoke in the conditions of southern Uzbekistan [7]. To the mind of the authors, the varietal characteristics of the reaction of the artichoke to the conditions of introduction were not revealed. All plants after sowing grew rapidly, developed normally and gave full seeds in the first year of life. However, further research with this culture was discontinued.

MATERIALS AND METHODS

In 2018-2019 at the Surkhandarya scientific experimental station of the Research Institute of vegetable, melon and potato growing, the studies were carried out on the introduction of the artichoke.

The objects of research were the cultivars Krasavets (Russia) (Spinosi group) and GreenGlobe (Spain) (Romanesco group). The Romanesco group includes cultivars with spherical or close to spherical inflorescences, without sharp protrusions on the bracts and leaves. The Spinosi group includes varieties that have long, sharp projections on the bracts and leaves.

The seeds were sown on November 15, 2017 and 2018 in unheated film greenhouses. Seedlings were transplanted in the phase of 5-6 true leaves in the first decade of February. Planting scheme was 1x1 m size.

During the growing season, phenological observations, morphological description of plants, and yield accounting were carried out according to the method [8, 9].

RESULTS AND DISCUSSION

Introductions have played an outstanding role in the history of world agriculture. Suffice it to say that countries such as the USA, Canada, Australia built their agriculture almost entirely on the introduction of foreign plants and animals [10, 11, 12].

The introduction in Uzbekistan is associated with the appearance of tomato, sweet pepper, potato and a number of other important agricultural crops, without which it is difficult to imagine our life now.

A promising direction is the introduction of new valuable species of vegetable plants, widely cultivated in various countries of the world, but little-known and therefore less widespread in Uzbekistan. These crops include the artichoke, known for its nutritional and healing properties.

The problems of plant introduction, solution of the problems of growth and successful development of plants in various soil and climatic conditions are extremely relevant issue today [13].

This article presents some of the results of research on the introduction of artichoke in the dry subtropics of Uzbekistan.

When sowing artichoke seeds in unheated film greenhouses on November 15, 2017 and 2018, single shoots of the cultivar Krasavets appeared on November



27, i.e. on the 12th day after sowing, and mass shoots appeared on December 4 and on the 20th day, respectively. In the GreenGlobe cultivar, single shoots

appeared on the 15th and mass shoots on the 22nd day from sowing (Table 1).

Table 1
Dates of phenological phases of the development of artichoke depending on the age of the plant, in 2017-2019

Developmental phases	Cultivars	
	Krasavets	GreenGlobe
I-year of life		
Shoots	10%	27.11.2017
	75%	04.12.2017
Repiness	10%	10.06.2018
	75%	15.06.2018
Flowering	10%	20.06.2018
	75%	26.06.2018
Full ripeness	10%	21.07.2018
	75%	28.07.2018
II-year of life		
Regrowth		25.01.2019
Ripeness	10%	30.04.2019
	75%	06.05.2019
Flowering	10%	10.05.2019
	75%	18.05.2019
Full ripeness	10%	16.06.2019

Depending on the age of the plants, the dates of onset and the duration of the subsequent interphase periods of the artichoke differ significantly.

In the first year of life, the beginning of the ripeness of the inflorescences (flower head) of the Krasavets variety occurs on June 10, full ripeness on June 15. In the second year of life, the onset of these phases of development occurs on April 30 and May 6, respectively. In the GreenGlobe variety, the beginning of ripeness of inflorescences in the first year of life begins on June 20, mass ripening on June 28.

Mass flowering of Krasavets cultivar of artichoke plant in the first year of life occurs on June 26, and in the second year - on May 18. In the second year of life, the onset of this phase occurs 38 days earlier than in the first year. Mass flowering of GreenGlobe cultivar of artichoke plants occurs on July 5 in the first year of life, while in the second year - on May 22. In the second year of life, the onset of this phase occurs 43 days earlier than in the first year.

When comparing the duration of the interphase periods of plants in the first and in the second year of life, it was found that in the second year of life it is significantly reduced.

In the first year of life, the period from mass shoots to the beginning of ripeness in the studied varieties made 190-197 days (Table 2). In the second year of life, the duration of this period constituted 96-101 days and decreased by 94-96 days compared to the first year of life.

This feature can be used to ensure an even supply of the artichoke crop to retail chains. First, the harvest comes from the second year crop, and then from the first years.

The period from mass shoots to the beginning of full ripeness (i.e., to seed ripening), depending on the variety, makes 231-237 days in the first year of life, while in the second year, it is 143-147 days. In the second year of life, this period is reduced by 88-90 days.

Depending on the age of artichoke plants, the morpho-biological characteristics also differ significantly (Table 3). So, in the first year of life, the height of plants of the Krasavets variety was 110 cm, and in the second year – 216 cm. The same phenomenon was observed in the GreenGlobe cultivar.

If the plants of the Krasavets variety in the first year of life form 1-2 branches, then in the second year they are 2-4 pieces. At the same time, GreenGlobe plants do not form branches regardless of age.



Table 2
Duration of phonological phase of the development of artichoke in the conditions of the south of Uzbekistan, in 2017-2019

Cultivars	From mass shoots, days				
	Before the beginning of ripeness	Before mass ripeness	Before the beginning of flowering	Before mass flowering	Before full ripeness
I-year of life					
Krasavets	190	195	200	206	231
GreenGlobe	197	205	207	212	237
II - year of life (from the beginning of regrowth)					
Krasavets	96	102	106	114	143
GreenGlobe	101	107	111	118	147

The most significant differences were, in our opinion, in the number of inflorescences (flower heads). Thus, the plants of the Krasavets variety in the first year of life form from 10 to 28 inflorescences, and in the second year - from 36 to 67. The number of inflorescences of plants of the GreenGlobe variety is significantly less than in the Krasavets variety. In the GreenGlobe variety, the plants formed 9-20 inflorescences in the first year of life, while in the second year of life, they were 11-24.

The most important indicator that ultimately determines the yield is the average weight of the inflorescences. Thus, in the cultivar Krasavets in the first year of life, the average weight of inflorescences in the ripeness phase was 98 g, and in the second year, 121 g. In the GreenGlobe cultivar, these indicators were, respectively: 202 g and 215 g. In the second year of life, the plants formed larger inflorescences.

Depending on the age of the plants, the yield of the artichoke was different. Thus, in the first year of life the

productivity of the plants of Krasavets cultivar was 1.96 kg, which in terms of an ideal hectare was 19.6 t/ha. The same indicators in the second year of life were respectively: 5.55 kg/plant and 55.5 t/ha. The productivity of GreenGlobe variety in the first year of life was 2.97 kg, which was 29.7 t/ha per ideal hectare. In the second year of life, the indicators were 3.92 kg/plant and 39.2 t/ha respectively.

In the process of research, some issues of artichoke seed production in the dry subtropics of Uzbekistan were also studied (Table 4). When identifying the most effective method for the formation of a seed plant, we compared the cultivation of seed plants without formation and 4 methods of formation: 1 stem on a plant and 3 inflorescences on a stem, 2 stems on a plant and three inflorescences on each, 3 stems on a plant and three inflorescences on each, 4 stems per plant and 3 inflorescences on each.

Table 3
Morpho-biological traits of artichoke depending on the age of plant, in 2018-2019

Traits	Cultivars			
	Krasavets		GreenGlobe	
	I-year of life	II-year of life	I-year of life	II-year of life
Plant height, cm	110	216	93	155
Numbr of branches, pcs	1-2	2-4	1	1
Number of inflorescences (flower heads), pcs	10-28	36-67	9-20	11-24
Mass of inflorescences (flower heads) in ripeness phase, g	98	121	202	215
Plant productivity, kg/plant.	1.96	5.55	2.97	3.92



Table 4
Productivity and quality of artichoke seeds with different methods
of formation of seed plant, in 2018-2019

Methods of formation of seed plant	Seed productivity of a plant, g	Mass of seeds from one inflorescence, g	Mass of 1000 seeds, g	Number of seeds, pcs	
				From one plant	from one inflorescence
Control – without formation	734.2	15.0	46.5	15789.0	322.2
1 stem on a plant and 3 inflorescences on a stem	102.7	34.2	54.6	1881.0	627.0
2 stems on a plant and 3 inflorescences on each	179.7	30.0	54.8	3279.0	546.5
3 stems on a plant and 3 inflorescences on each	246.5	27.4	67.6	3648.0	405.3
4 stems on a plant and 3 inflorescences on each	270.1	22.5	47.1	5735.0	477.9

The highest seed productivity was noted in the variant without the formation of a seed plant: 734.2 g/plant or 15789 seeds/plant. Comparatively higher seed productivity was noted in the variants 3, 4 and 5 of the experiment. Seed productivity of plants in these variants was 179.7, 246.5, 270.1 g, respectively. This is 24.5-36.8% compared to the control. However, in terms of such indicators as the mass and number of seeds from one inflorescence, the mass of 1000 seeds of a plant without formation is significantly inferior to other variants. Based on the results of experience, the variants 3, 4, 5 can be considered appropriate to use in artichoke seed production.

Research has shown that in the conditions of southern Uzbekistan there is potential for the cultivation of artichoke seeds with high sowing quality.

CONCLUSION

Thus, for the first time in Uzbekistan, the morphobiological and farm- valuable traits of the artichoke have been studied. The research results showed that the artichoke is a valuable food product for the conditions of Uzbekistan and its introduction allows us to expand the range of cultivated vegetable crops.

Phenological observations made it possible to determine the specific and varietal reactions to the onset and duration of phenological phases, the rhythm of development of artichoke plants at different sowing dates.

In the conditions of the southern Uzbekistan, there is potential for the cultivation of high-quality artichoke seeds.

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A STUDY ON PROBLEM SOLVING ABILITY OF GOVERNMENT SECONDARY SCHOOL STUDENTS IN AIZAWL CITY WITH REFERENCE TO GENDER

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ABSTRACT

The aim of this research is to study the problem-solving ability among Government secondary school students in Aizawl city. For this purpose, the sample was selected from different secondary school within Aizawl City. The sample consisted of 90 students. Out of 46 male students and 44 female students were taken. Problem Solving Ability Test (PSAT) developed by L.N. Dubey was used as a tool for data collection. Mean and t-test were used to analysed the data. The findings of the study reveal that no significant difference was found in in relation to gender and there is high ability of problem-solving ability of Government secondary school students.

KEYWORDS: *Problem solving ability, Government school, gender.*

INTRODUCTION

Problem solving ability here means to test the students' ability to learn or understand a new and difficult situation. It also includes the skills of the students, the level of students' ability to apply knowledge to manipulate one's environment while also to think abstractly as measured by objective criteria. In our daily life, we face many problems, it may be different types on the basis of our life styles, and we try to solve those problems as far as possible on our own. The right way to solve the problem can be done by only right thinking and proper reasoning which depends upon the level of intelligence of individual. According to Woodsworth and Marquis (1948) "Problem Solving behaviour occurs in novel or difficult situations in which a solution is not

obtainable by the habitual methods of applying concepts and principles derived from past experience in very similar situation."

In India, each state has its own Department of Education that runs its own school system with its own textbooks and evaluation system. The curriculum, pedagogy and evaluation method are largely decided by the SCERT in the state, following the national guidelines prescribed by the NCERT. Each state has three kinds of schools that follow the state curriculum. The government runs its own schools in land and buildings owned by the government and paying the staff from its own resources. These are generally known as *government schools*. The fees are quite low in such schools. Then there are privately owned schools with their own land



and buildings. Here the fees are high and the teachers are paid by the management. Such schools mostly cater to the urban middle-class families. The third kind consists of schools that are provided grant-in-aid by the government, though the school was started by a private agency in their own land and buildings. The grant-in-aid is meant to help reduce the fees and make it possible for poor families to send their children.

RATIONALE OF THE STUDY

Aizawl city is the state capital of Mizoram. In Mizoram there are three kind of secondary schools i.e. Government schools, Grand-in-Aided and Private schools. In Government schools, all the infrastructure and facilities are provided by the government. According to RMSA policy, school should be inclusive school. That means children those who are between 14-16 years should be admitted in the appropriate class. From the above-mentioned nature of government school shows that the students in government school at the secondary level in Mizoram are diverse in their learning behaviour. The present study tries to find out what ability in problem solving among government secondary school students in Aizawl city. Also, the ability of problem solving in relation to gender and comparison between male and female students in the government secondary school is needed for further improvement of government school. The research study on problem solving ability of government secondary school students may also be fruitful for the teacher in the teaching of mathematics subject. Problem solving ability is highly a cognitive process, so the finding of the study can tell us the nature of students precisely. The investigator felt that the importance to study on that areas.

OBJECTIVES OF THE STUDY

1. To find out the level of Problem-solving ability of Governments' secondary school students in Aizawl City.
2. To find out the level of Problem-solving ability of male students of Governments' secondary school of in Aizawl City.
3. To find out the level of Problem-solving ability of female students of Governments' secondary school in Aizawl City.
4. To compare problem solving ability of Government secondary school students in relation to gender.

HYPOTHESES OF THE STUDY

There is no significant difference between problem-solving ability of male and female students

of Government secondary school students in Aizawl city.

RESEARCH DESIGN

The investigator adopted descriptive survey approach for the present study as it surveys and inquire problem solving ability of secondary school students.

Population and Sample

The population of the present study comprise of all the class 9 students in Government secondary school in Aizawl city. The investigator selected 6 Government secondary school.

Tools used

The investigator used consumable booklet of PSAT-d (English version) design by L.N. Dubey published by National Psychological Corporation, Agra.

Reliability: the reliability coefficient of the test was calculated by two methods in which .78 was the reliability coefficient in Spearman-Brown formula (split-half method) while .76 was Kuder-Richardson formula (Rational equivalent method).

Validity: The coefficient of validity was calculated by correlation the scores were .68 and .85 in Group Intelligence test (R.K Tandon) and Test of Reasoning Ability respectively

Data Collection

The investigator randomly selected different Secondary school in Aizawl city and visited them to ask for the permission of the Principal to administer the tool on the selected sample students of class IX. After getting permission, the investigator had made a good rapport, and administered the test on the students. The test scores were collected and entered as a raw score for further analysis.

Data analysis

Statistical analysis through t-test was used to test the hypothesis. Percentage and mean were adopted to find out the level of problem-solving ability of the students.

ANALYSIS AND INTERPRETATION

Analysis and interpretation are done in accordance with the objectives of the study as follows:

1. To investigate the level of Problem-solving ability of government secondary school students in Aizawl City.

In order to find out the level of problem-solving ability of secondary school students in Aizawl city the scores obtained from the scale are analysed and interpreted in accordance with the norms provided in the manual of the scale and the finding are presented in the following table:



Table 1
Level of Problem-solving ability of Government secondary school students

Z	Level of PSAT	No. of students	Percentage
1	Very High	41	46
2	High Ability	22	24
3	Average Ability	16	18
4	Low Ability	6	7
5	Very low Ability	5	5

Analysis of the above table No. 1 shows that 46 % of the students have very high problem-solving ability while 24 % have High Ability of problem-solving ability whereas 18 % of the students have

Average Ability of problem-solving ability while 7 % of the students have low ability and 6 % of the students have Very low ability of problem-solving ability.

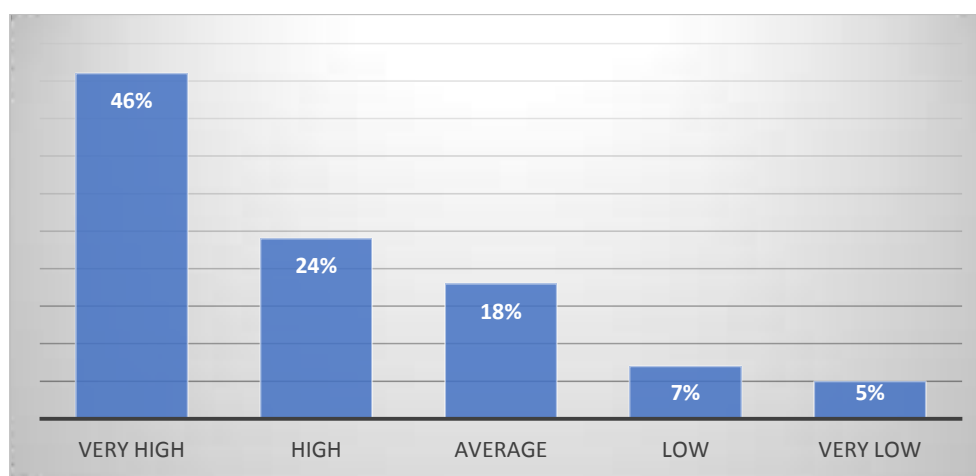


Figure 1: Percentage Scores of problem-solving Ability of government secondary school students in Aizawl City.

2. To investigate the level of Problem-solving ability of government secondary school Male students in Aizawl City.

In order to find out the level of problem-solving ability of government secondary school Male

students in Aizawl city the scores obtained from the scale are analysed and interpreted in accordance with the norms provided in the manual of the scale and the finding are presented in the following table:

Table 2
Level of Problem-solving ability of government secondary school Male students in Aizawl City.

Sl.no	Level of PSAT	No. of students	Percentage
1	Very High	20	45.45
2	High Ability	12	27.27
3	Average Ability	9	20.45
4	Low Ability	3	6.82
5	Very low Ability	2	4.54

Analysis of the above table No. 2 shows that 45.45 % of the students have very high problem-solving ability while 27.27 % have High Ability of problem-solving ability whereas 20.45 % of the students have Average Ability of problem-solving

ability while 6.82 percent of the students have low ability and 4.54 % of the students have Very low ability of problem-solving ability.

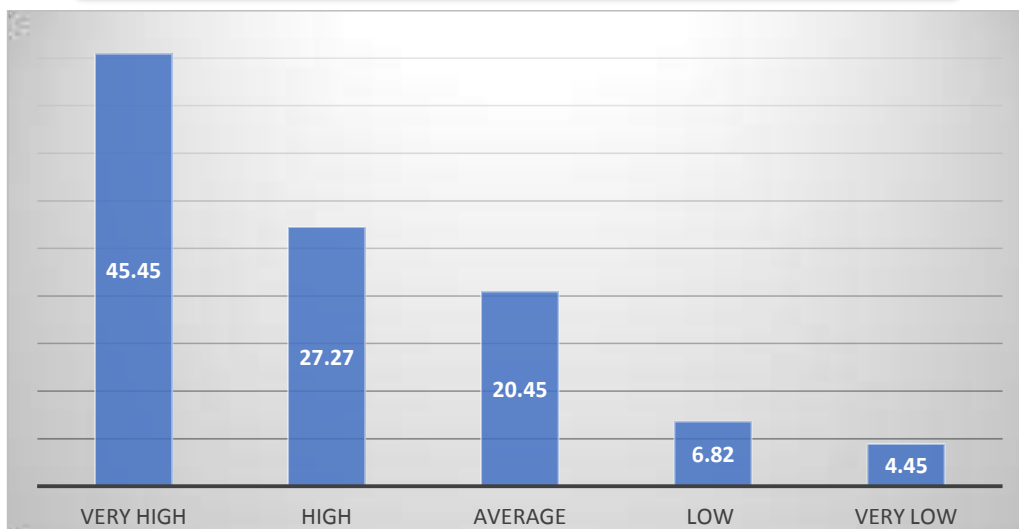


Figure 2: Percentage Scores of problem-solving Ability of government secondary school Male students in Aizawl City.

3. To investigate the level of Problem-solving ability of government secondary school female students in Aizawl City.

In order to find out the level of problem-solving ability of secondary school students in

Aizawl city the scores obtained from the scale are analysed and interpreted in accordance with the norms provided in the manual of the scale and the finding are presented in the following table:

Table 3

Level of Problem-solving ability of government secondary school female students in Aizawl City.

Sl.no	Level of PSAT	No. of students	Percentage
1	Very High	21	47.73
2	High Ability	10	22.72
3	Average Ability	7	15.91
4	Low Ability	3	6.82
5	Very low Ability	3	6.82

Analysis of the above table No. 3 shows that 46 % of the students have very high problem-solving ability while 24 % have High Ability of problem-solving ability whereas 18 % of the students have

Average Ability of problem-solving ability while 7 % of the students have low ability and 6 % of the students have Very low ability of problem-solving ability.

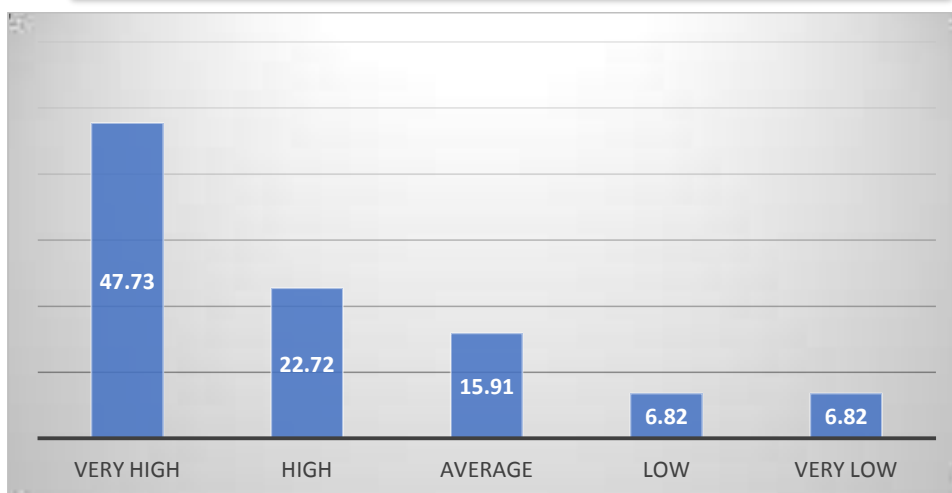


Figure 3: Percentage Scores of problem-solving Ability of government secondary school Female the Students

4. To compare problem solving ability of government secondary school students in relation to Gender

The difference in the level of teaching interest between male and female students was compared. For this mean was calculated and the mean differences were tested by applying ‘t’ test and the detailed are presented in the following table no. 5

**Table 4
Comparison of problem-solving Ability of Male and Female Students.**

Problem-solving ability	N	Mean	t-value	Level of significant
Male	46	14.83	1.45	N.S
Female	44	13.91		

Analysis of data vide table no. 4 reflect the result for the test of significant differences between male and female students of secondary schools in relation to their level of problem-solving ability. The mean value for male and female students is 14.83 and 13.91 respectively. The table also reveals the t-value for the mean scores of male and female students towards problem-solving ability level found to be 1.45 which is not significant.

Therefore, the null hypothesis no.1, there is no significant differences in the level of problem-solving ability between male and female students of secondary schools is retained. This finding implies that problem-solving ability level of male and female students are not significantly different. Male and female students are not differed significantly in their ability of problem-solving.

MAJOR FINDINGS

- i. Average score on problem solving ability test of government secondary school students in Aizawl is 14.38 which is lie on

- the High-level ability according to the interpretation given by L.N. Dubey. Meanwhile Most of the students were under the level of very high ability of problem-solving ability. 63 out of 90 number of students, that is 70% lie on above average. Therefore, students of secondary school in Aizawl City were good in problem-solving ability.
- ii. Average score on problem solving ability test male students is 14. 83 which is lie on the High-level ability according to the interpretation of boys given by L.N. Dubey. Meanwhile Most of the students were under the level of very high ability of problem-solving ability. 32 out of 46 number of students, that is 78.26 % lie on above average. Therefore, students of secondary school in Aizawl City were good in problem-solving ability
- iii. Average score on problem solving ability test is 13.91 which is lie on the High-level ability according to the interpretation of



Girls score given by L.N. Dubey. Meanwhile Most of the students were under the level of very high ability of problem-solving ability. 32 out of 44 number of students, that is 70.45% lie on above average. Therefore, students of secondary school in Aizawl City were good in problem-solving ability

- iv. In respect to gender, there is no difference in the level of problem-solving ability between male and female students of government secondary schools of Aizawl City.

DISCUSSION

The study reveal that the level of problem-solving ability is high among Government secondary school students in Aizawl city. There can be many reasons and factors which influence this result. This could be because of learning mathematics as compulsory subject. Problem-solving ability test is closely related with mathematics subject. It is a task finding of numerical problem involving highly thinking skill. Besides that, Mizoram Board of School Education (MBSE) introduces Higher Order Thinking Skills (HOTS) question in the question design at the level of secondary school. Teachers try to impart to activate higher order thinking ability among the students that may be helpful to raise the level of problem-solving ability of the secondary level students.

Gender wise analysis of the results reveals that there is no significant difference between male and female students in problem-solving ability. Similar result is found in the study of (Kumari, 2016) on problem-solving ability of Senior Secondary School Students. The supporter of the result is also found on the study of (Singh & Gopalkrishnan, 2017) effect of Gender on problem-solving Skills through Integrated Teaching Program. The same result had found by (Behra, 2009) on his study on problem-solving skills in mathematics learning. Manohra and Ramganesh (2009) conducted a study on creative problem-solving ability of 11th class students and find that the boys tend to excel girl in their creative problem-solving ability which contradict the result of the present study.

CONCLUSION

In the light of the findings presented in the above, the following conclusions are drawn. There is a satisfactory result in the Problem-solving ability test among secondary school students. So, the researcher felt that a study on Problem-solving ability of private school in the same city or other city can be taken up, how the student's ability in problem solving can affect their academic achievement? Is there any relation between the two areas? There is no

significant difference between boys and girls in their Problem-solving ability. So that, the educational planner or administrator can be framed same policies for male and female students in secondary stage.

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A STUDY ON CONSUMER'S PERCEPTION TOWARDS ONLINE GROCERY SHOPPING IN COIMBATORE CITY (WITH SPECIAL REFERENCE TO BIGBASKET)

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ABSTRACT

This study is fully focused on online grocery shopping through big basket. Online shopping or marketing is the utilization of technology for promoting marketing activities and selling products. One can buy Indian grocery items online from us at the most affordable prices. Consumers buy goods from the online shopping website on the basis of factors like offer and discounts, variety of product available, free home delivery, website user friendliness and cash on delivery payment option. The consumers are getting attracted with the discount offer of the online grocery store (big basket). Consumer's perception towards online grocery shopping is affected by various factors. Since, grocery is required for all households and individuals are recommended to conduct the research on consumer's perception which would be influenced by changing economies and other factors.

KEYWORDS: *Grocery shopping, consumer perception, internet, e-commerce*

INTRODUCTION

Consumer perception refers to the process by which a customer selects, organizes, and interprets information/stimuli inputs to create a meaningful picture of the brand or the product. It is a three stage process that translates raw stimuli into meaningful information. Each individual interprets the meaning of stimulus in a manner consistent with his/her own unique basis, needs and expectations. Three stages of perception are exposure attention and interpretation. In similar terms, it is how a customer sees a particular brand with whatever he/she has been able to understand by watching the product, its promotions, feedback etc., it is the image that of particular brand in the mind of the customer.

STATEMENT OF THE PROBLEM

Online groceries are confronted with numerous challenges. The general lack of practical experience in consumer's needs and demands renders the development of a profitable e-grocery strategy even more difficult. The problem area of this survey is consumer's perception towards online shopping will determine the factors that influence consumers to shop online and those factors will help the companies to formulate their strategies towards online marketing.

SCOPE OF THE STUDY

E-grocery is happening in India to a big way. The E-shopping will replace traditional in-store shopping in the near future. Though the traditional shopping is still



to stay but the online buying could change the way people experience shopping grocery. The study is to identify whether people are changing the way they shop their food and grocery from the next door to online web stores. The study is conducted to reveal the consumer's attitude on e-grocery and their preference towards the same. This study will help to find out whether e-grocery will exceed the preference of using the traditional way of shopping and increase the response of online grocery in future. There are numerous opportunities for innovative new services.

OBJECTIVES OF THE STUDY

- To understand the consumer perception towards online grocery shopping.
- To determine the factors influencing consumer to purchase in online grocery shop.
- To identify the problems faced by the consumer while online shopping.
- To find out the preferences of the consumer regarding the attributes of online shopping website.

RESEARCH METHODOLOGY

The descriptive research design was adopted in the study. The data was collected from primary and secondary sources. The data was collected from 120 respondents from Coimbatore city through questionnaire by adopting convenience Sampling Technique. Percentage analysis, Ranking analysis, Likert scale analysis were used to analyses the data.

LIMITATIONS OF THE STUDY:

- Due to limitation of time only few people were selected for the study. So the sample of consumers was not enough to generalize the findings of the study.
- The main source of data for the study was primary data with the help of self-administered questionnaires. Hence, the chances of unbiased information are less.
- People were hesitant to disclose the true facts.
- The chance of biased response can't be eliminated though all necessary steps were taken to avoid the same.

REVIEW OF LITERATURE

Sabari Shankar R and Nareshkumar S (2018), in their study, they said that the online shopping has become an integral part of consumer. To understand the impact of demographic factors on consumer perception of online grocery shopping. Research methodology is the collection of methods which are used to perform research. Simple percentage analysis has been used to find and analyse the response percentage to the factors of the survey. The concluded that there are the major few factors are influencing the factors of purchasing through online.

S.Sathiyaraj, et.al (2015), in their study, the author's introduce that, the increasing use of internet by the younger generation in India provides an emerging prospects for online retailers. The main objective of their study is to find out the preference of the consumers regarding by the consumer while online shopping. The author collected the primary data using structured questionnaire by survey method from 200 respondents.

DATA ANALYSIS AND INTERPRETATION

The collected data were grouped, edited, tabulated in a mater table and analysed using the following statistical tools

1. Percentage Analysis
2. Rank Analysis
3. likert scale Analysis

PERCENTAGE ANALYSIS

Percentage analysis is method of raw data as a percentage i.e as a part in 100 percentage, for better understanding of the collected data. This analysis describes the classification of respondents falling in each category.

The percentage analysis is mainly used for standardization and comparisons are in support with the analysis.



FORMULA

$$\text{Percentage Analysis} = \frac{\text{No. of respondents}}{\text{Total no. of respondents}} * 100$$

TABLE NO .1
TABLE SHOWING GENDER OF THE RESPONDENTS

S.No	Categories	No. of Respondents	Percentage (%)
1	Female	68	57
2	Male	52	43
		120	100

Source: Primary data

INTERPRETATION

The table shows that 57% of respondents are female and 43% of respondents are male.

INFERENCE

Majority 57% of the respondents are female.

4.2 RANK ANALYSIS

A ranking is a relationship between a set of items such that, for any two items, the first is either 'ranked higher than', 'ranked lower than' or ranked equal to the second. Analysis of data obtained by ranking commonly requires non-parametric statistics. In this study, ranking analysis applied for response collected which are ranked from (10 to 1) towards various source of information by the respondents and given various factors which are in online grocery shopping.



TABLE 4.2.1
TABLE SHOWING RANKING FACTORS OF ONLINE GROCERY SHOPPING

S.No	Particulars	1	2	3	4	5	6	7	8	9	10	Total	Rank
1	Quality of product	28(10)	10(9)	8(8)	18(7)	18(6)	4(5)	12(4)	8(3)	4(2)	10(1)	778	2
2	Number of variety	4(10)	6(9)	8(8)	8(7)	20(6)	20(5)	22(4)	6(3)	14(2)	12(1)	580	10
3	Price	12(10)	4(9)	6(8)	6(7)	20(6)	22(5)	12(4)	16(3)	10(2)	12(1)	604	8
4	Delivery time	12(10)	6(9)	8(8)	16(7)	8(6)	14(5)	12(4)	8(3)	18(2)	18(1)	588	9
5	Customer service	6(10)	16(9)	18(8)	16(7)	4(6)	12(5)	10(4)	12(3)	4(2)	22(1)	650	4
6	Offers	12(10)	16(9)	6(8)	12(7)	20(6)	8(5)	10(4)	4(3)	16(2)	16(1)	656	3
7	Fresh fruit&vegetable	6(10)	6(9)	22(8)	18(7)	6(6)	6(5)	16(4)	14(3)	14(2)	12(1)	628	7
8	Credit/debit payment	10(10)	10(9)	14(8)	10(7)	10(6)	14(5)	8(4)	18(3)	18(2)	8(1)	632	6
9	Problems	8(10)	20(9)	10(8)	8(7)	6(6)	14(5)	10(4)	18(3)	18(2)	8(1)	640	5
10	Time savings	20(10)	24(9)	20(8)	8(7)	8(6)	6(5)	8(4)	16(3)	4(2)	6(1)	804	1

Source: Primary data



INTERPRETATION

From the table, it is understood that time savings is ranked 1, quality of product is ranked 2, offers is ranked 3, customer service is ranked 4, problems is ranked 5, credit/debit payment is ranked 6, fresh fruits & vegetable is ranked 7, price is ranked 8, delivery time is ranked 9 and is number of variety ranked 10.

INFERENCE

The quality of product have been ranked 1st by the customers in online grocery shopping.

3. LIKERT SCALE ANALYSES

A likert scale is a type of rating scale used to measure attitude or opinions. With this respondents are asked to rate items on a level of agreement. Likert scale is the common ratings format for surveys. Five to seven items are usually used in the scale. To analyse the data it is usually coded as follows:

- 5 = Highly satisfied
- 4 = Satisfied
- 3 = Neutral
- 2 = Dissatisfied
- 1 = highly Dissatisfied

FORMULA

$$\text{Likert scale} = \frac{\sum fx}{\text{Total number of respondents}}$$

While,

f = Number of respondents

x = Likert scale value $\sum fx$ = Total score

Mid value

Mid value indicates the middle most value of likert scale.

TABLE NO.3
TABLE SHOWING SATISFACTION LEVEL OF ONLINE GROCERY SHOPPING

S.No	Factors		5	4	3	2	1	TOTAL	Likert Scale
	Likert Scale value (x)								
1	Home delivery	F	26	74	20	0	0	120	4.05
		Fx	130	296	60	0	0	486	
2	Save time	F	40	68	12	0	0	120	4.23
		Fx	200	272	36	0	0	508	
3	Discount & offers	F	34	64	22	0	0	120	4.1
		Fx	170	256	66	0	0	492	
4	Price comparison	F	24	66	26	2	2	120	3.9
		Fx	120	264	78	4	2	468	
5	Non availability of product offline	F	16	56	46	2	0	120	3.71
		Fx	80	224	138	4	0	446	

Source: Primary data

INTERPRETATION

Likert scale value is 4.23 is greater than the mid value (3), thus the respondents think that online shopping will be satisfied as it save their time to shop for grocery items in online. They are satisfied with home delivery of foods & vegetables and they satisfaction level is high in time saving by purchasing grocery at online (big basket), they satisfied with discounts and offers which are provided by online grocery shopping, they compare the price of grocery

with offline and online and they satisfied with online price comparison of grocery, they also satisfied with non availability of product offline.

INFERENCE

The respondents think that online shopping will be satisfied as it save their time to shop for grocery items in online.



FINDINGS, SUGGESTIONS AND CONCLUSION

FINDINGS FROM PERCENTAGE ANALYSIS

- 50% of the respondents are in the group of above 30 years.
- 57% of the respondents are female.
- 70% respondents are married.
- 58% of the respondents are nuclear family.
- 43% of respondents are between 3-5 members in family.
- 52% of the respondents are UG level.
- 42% of the respondents are having income of 20001 to 30000.
- 35% of the respondents are going for online grocery shopping occasionally.
- 48% of the respondents are said that they purchasing grocery at super market other than online.
- 45% of the respondents are known about big basket through relatives.
- 43% of the respondents are attracted by the discount offered.
- 54% of the respondents are paid maximum delivery fee of between 50-100 rupees.
- 36% of the respondents pay their payment by debit/credit card during online grocery shopping.
- 47% of the respondents are facing issue of find/search for product in online grocery shopping.
- 88% of the respondents are beneficial through buying online grocery shopping.
- 40% of the respondents are beneficial through variety at one shop in online grocery shopping.
- 40% of the respondents are unsatisfied by purchasing non food items at online grocery shopping.

FINDINGS FROM RANK ANALYSIS

- The quality of product have been ranked 1st by the customers in online grocery shopping.

FINDINGS FROM LIKERT SCALE ANALYSIS

- The respondents think that online shopping will be satisfied as it save their time to shop for grocery items in online.

- The respondents are satisfied with access of online shopping of grocery and it is user friendly to purchase the grocery items.
- The respondents highly satisfied with the fruits which are delivery by the online grocery shopping.
- The respondents are not agreeing with the issues regarding online grocery shopping.

SUGGESTION

- Create awareness & manage home delivery services properly.
- Advertise the product to reach mostly female customers age above 30
- People are finding difficult to search/order their product which are needed. So it is suggested that, the website should provide some more facilities to get their products.
- The main barrier in the process of online shopping is the safety issue
- 24/7 shopping facility can be given more priority by the companies for a sophisticated purchase by the customers.
- It is suggested to the online grocery store (big basket) that the consumers should be allowed to place their orders through telephone.
- The online grocery store should develop the quality of packed juice and beverages.
- People are suggesting that the variety of products should be increased.

CONCLUSION

Consumers buys goods from the online shopping website on the basis of factors like offer and discounts, variety of product available, free home delivery, website user friendliness and cash on delivery payment option. The consumers are getting attracted with the discount offer of the online grocery store (big basket). Consumer's perception towards online grocery shopping is affected by various factors. Since, grocery is required for all households and individuals are recommended to conduct the research on consumer's perception which would be influenced by changing economies and other factors.

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INTERNET FOR RETAIL -A GAME CHANGER FOR RETAIL INDUSTRY

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I. INTRODUCTION

In the past, the main focus for retailers was that of mass production and sales. These were times when retailers were in the advantage seat as consumer demands were exceeding the actual supply. However, today's market is different story. The focus of businesses today has shifted to create a great customer experience and give value to the customers, not just selling them products and services. Technology played a crucial role as it has made it easier for customers to be well informed. Hyken(2016) argues that customers today are smarter, hence their expectations are higher than even before. He also added that since large companies have "educated customers of what a great customer service looks like, now customers are have come to expect it" (Hyken, 2016). Lashbrooke(2016) also has his views on this subject as he states that since consumer demands are ever increasing, without a doubt it is creating a shift on the way businesses are conducted. He added that today's customer needs are "forcing change upon businesses' out-dated customer services and procedures" (Lashbrooke, 2016).

Chang, Dong and Sun (2014) defined customer experience as "the customers' perceptual and emotional responses brought about in the process of interaction with companies' products, services and other elements". Every experience is becoming a digital experience as things that are perceived as being 'ordinary' are becoming more intelligent and smart (Gregory, 2015). Hsu and Lin (2016) defined smart objects as a "physical embodiment with communication functionality, possessing a unique identifier, some basic computing capabilities and a way to detect physical phenomena and to activate

actions having an effect on physical reality". The increasing number of smart objects that are connected to the internet have gave rise to the concept of Internet of Things (Hsu and Lin, 2016). Gregory (2015) argues that while the concept of Inter of Things may be seen like a dream and "it is becoming a reality faster than most of us can comprehend". Retailers that fail to realise such fact will open the doors for their competitors, ending up in losing the competitive advantage in such diverse and complex market. Gieriej (2017) argues that Internet of Things is causing companies to redesign their products and services in order to survive in today's market.

II. DEFINING INTERNET OF THINGS

It was a British entrepreneur, Kevin Asthon, who back in 1999 came up with the concept of Internet of Things (Vyas, Bhatt and Jha, 2016). Lopez Research LLC (2013) clearly defines Internet of Things as "a system where items in the physical world and sensors within or attached to these items, are connected to the Internet via wireless and wired Internet connections". Aleksandrovičs, Filičevs and Kampars (2016) states that Internet of Things comes in different forms – ranging from a number of simple sensors that can be found easily in a room, to a more complex and global structure. Patel and Patel(2016) added that items are connected over public or private Internet Protocol networks and such items include data that is "regularly collected, analysed and used to initiate action, providing a wealth of intelligence for planning, management and decision making".



Without a doubt, Internet of Things has revolutionized the retail industry and the way service and value is delivered to customers. Till now, there are already a large number of connected devices and IoT services, and the market for these services is continuously growing (Hsu and Lin, 2016). In their research, Krotov (2017) states that market research companies have estimated a rise in the number of connected devices; from 16 billion connected devices in 2014 to 50 billion in 2020. Such rise will result in trillion of dollars in revenue for retail industries. However, since the number of connected devices is large, there is the need to further regulate issues such as data protection (Weber, 2015). Issues such as privacy will be further discussed in the below sections.

III. TODAY'S RETAIL INDUSTRY

Nowadays, the retail scenario involves "physical spaces where consumers engage in commerce" in which consumers are able to buy goods or services (Martin, 2016). One may have various types of retail stores, such of which include the grocery shops which fall under the traditional shops though also different types of stores may be considered as part of the retail industry such as showrooms (Martin, 2016). Therefore the retail industry may be considered as a volatile industry, prone to changes and evolutions in line with different technologies which have been created and those which might be created and progressed in the future. The rapid increase in complexity of internet, such as Internet of Things, has revolutionised the retail industry. Sorescu et al. (2011) discusses this issue and states that retailers have either created new market, to cater for the endless needs and demands internet have brought, or changed existing markets.

The evolution of smart households, or even smart appliances has definitely helped the retail industry to develop to what it is today (Pickett, 2015). Some examples of the smart appliances which are nowadays commonly found in the industry include the 'smart refrigerators', 'smart water heater' and others. As Pickett (2015) states "More and more appliances will be connected and have smart features. The consumer will have greater control and flexibility with the appliance. Appliance to appliance communication will occur to make them run better." this might enable the retail industry to further develop in the near future.

IV. RFID IN RETAIL

Radio Frequency Identification (RFID), according to Novotny, David and Csafor (2015), is a technology which involves a connected micro-chip with a miniature antenna in which through waves data will be transmitted from the transponder to the interrogator (Chawla and Ha, 2007). This is what

makes up a RFID tag, which might be used within the retail industry as it easy to be placed onto different objects as well as being economical to the organisation. According to Novotny, David and Csafor (2015) it is of importance that RFID offers a healthy amount of return of investment to the retailers and therefore would be a possible technology which might be used within the retailing industry. RFID has great potential in which it could generate an extra 2-7 percent increase in revenue, with a 2-5 percent reduction in operating expenses, and thus result in a 200 percent ROI for a typical manufacturing, warehousing and retailing firm". Novotny, David and Csafor (2015). This shows how RFID can be an important tool within the industry if it is exploited correctly and within the best possible way to help the retail industry grow even more. Therefore RFID has many different ways of applications which can help the retail industry to boost further, through for example quality and efficiency of a service which creates superior customer value (Kotler, 2017). These applications brings about multiple benefits, as discussed by Zare Mehrjerdi (2011) such as human capital in which the use of this technology will aid the retailers by reducing the costs incurred by human capital such as training cost and salary. Some other RFID benefits discussed in the paper "RFID and its benefits: a multiple case analysis" by Zare Mehrjerdi (2011) included self-checkout automation which might help the customer value due to having the possibility to check-out at ones own pace, as well as insight and velocity which go hand in hand together as the valuable data which is collected and produced with the technology will be available in a more efficient manner. Another major benefit for retailers discussed is the opportunity to increase revenue through various factors such as a reduction of out-of stock products, which makes the technology also adaptable for stock and inventory management, in which these benefits alongside other benefits will have the opportunity to develop a better retail industry.

V. NFC IN RETAIL

Near Field Communication (NFC), is an evolving technology which facilitates communication between two different nodes or gadgets with a distance of about 20cm, in which this technology may be embedded within different gadgets such as smart-phones as well as payment devices (Want, 2011). This technology may be useful within the retail industry as it may have many multiple different uses, although it also offers some disadvantages which comes with the technology such as security issues, although this may be improved with the improvement of the technology itself in the future. In



the paper 'Near Field Communication', Curran, Millar and Mc Garvey (2012) sees how NFC is "perhaps only a matter of time before NFC becomes another "must have" feature for mobile devices."

According to Curran, Millar and Mc Garvey (2012) it was Barclaycard which has introduced the first form of contactless payment in the U.K. with the maximum transaction value being that of £10 in the year 2007, by which in 2010 it was increased to £15. On 3rd August 2017 (BOV, 2017). BOV, one of the most prominent banks in Malta announced that it was also introducing contactless payments capped at £20, which is nowadays active. Also according Curran, Millar and Mc Garvey (2012) there are other forms of how the NFC technology may be used to aid the contactless payment facilities, with the introduction of NFC technology in smartphones in which the technology aided for the mobile payment to be created, which was adopted by both Google and Apple, two major smart phone producers, in which they were able to create Google Wallet and the Apple Pay respectively. These applications make use of the NFC technology embedded in smart phones to function correctly and efficiently.

Some other type of applications where NFC technology are those which can be used in conjunction with products, or posters to enable more information, this could be through the use of barcodes in which one can use the NFC found on smart phones to enable this process. Another application which one may be used in the airport retail industry is to facilitate the boarding process which tends to be ambiguous, in which NFC boarding passes are issued and then used with an NFC reader to confirm. This was being tested out by Air France -KLM in the France(Mena Report, 2014).

According to Coulombe(2012)NFC can have many different drawbacks, which might impact the use of NFC in the retail industry, some of which include an attack on the confidentiality and integrity of data as well as man-in-the-middle attack which may be of huge cost for the investors in the retail industry if not protected correctly.

VI. INTERNET OF THINGS - CONVENIENCE Vs PRIVACY ISSUES

Internet of things is relatively a new subject for a substantial amount of people. In a study, it was found that although consumer awareness about the subject is low, the interest regarding Internet of Things is high, particularly when it comes to solutions that learn about users' preferences and their behaviour(Newswire, 2015). In addition to this, it was found that in order to drive awareness and adaption there need to be an increase in education in the subject. The idea that Internet of Things makes consumer life easier and more convenient is appealing for both customers and retailers.

Convenience

Convenience in terms of Internet of Things can be defined as "the extent to which one can control an IOT system at any time and at anywhere through wireless of mobile phone or PC" (Dong et al., 2017).Dong et al. (2017) and Hsu and Lin (2016) states that Internet of Things applications brings convenience to both consumers and retailers as it improves living quality as well as reduces workload. Chang, Dong and Sun(2014) also have their views on the subject. They referred to convenience as the degree to which consumers spend less time in the process of purchasing a product. In addition to this, they also state that convenience will have a positive impact on both consumers' functional and emotional experience. Internet of Things offers convenience for both retailers and consumers. One of the main purposes of devices that form the Internet of Things is to collect data (Rowson, 2016). The collection of data allows for real-time decision making for retailers and actions to be acted upon (Weinberg *et al.*, 2015).

Privacy Issues

Before we start to discuss privacy issues found in Internet of Things, it is essential to understand the term *privacy* in terms of Internet of Things.Zhou and Piramuthu (2015)clearly explains the term privacy as a "double-edged sword". On one side people use privacy controls in order to protect their personal information.On the other side we see privacy as a barrier to new Information Technology innovations, such as Internet of Things. Internet of things exist because of data, data about consumers that is passed from a machine to another, therefore consumers' privacy must be at the heart of Internet of Things (Weinberg *et al.*, 2015).

Atkinson (2015) argues that while many literature is currently focusing on the proliferation of connected devices and how they will affect people's lives, there still remain concerns in regards to privacy and security. Hacking goes hand-in-hand with privacy issues. Weinberg *et al.* (2015)discusses that a security breach could be costly and disastrous for retailers. On the other hand, from consumers' point of view, hacking can also be identity theft and the results can also be disastrous. In his article, Weber(2015) states that a "high-degree of reliability is needed" and systems must be resilient to attacks, data must be authenticated, the need of access control and client privacy.

VII. TECHNOLOGY OF IoT

The IoT is composed of different devices and attributes connected over an internet connection, therefore having an IP address. This results that the IoT may be divided into three different areas, which all link up together, which are: the Technological Environment, the Physical Environment and the



Socio-Economic Environment(Krotov, 2017). All of these areas are then further subdivided into different components which together make up an effective IoT.

The technological environment can be subdivided into hardware, software, network, integrated platforms, standards and data. The hardware include the different devices and components which one may use, such as smart-phones, RFID tags, beacons and others in which they will be enabled with communication to create an integrated approach of the IoT. Software includes the IoT applications which are needed in order to support the execution. The network includes the wireless communication between the nodes and internet which are needed for the IoT to function effectively. Having an integrated platform is also ideal for a well-functioning IoT, this is because it enables seamless interoperability between the different hardware, software and other components. The standards of the IoT are described as the different technical and operational standards and protocols which are needed to ensure interoperability between the different components. Data is the crucial factor which makes the IoT function as a whole. Data is everywhere, therefore it needs exploitation, where the rest of the technological environment plays the role of the tools for exploitation (Krotov, 2017).

The physical environment can be subdivided into human objects, non-human objects and physical surroundings. The human objects are the human elements who interact with the various components, such as RFID tags, smart phones and others. The non-human objects are the objects which can connect and use a network or connection to transfer data within the IoT. The physical surroundings can be described as both the physical space and the physical substance. The physical space is the space in which the IoT take place, such as the room or building, on the other hand the physical substances may include air and water amongst others, in which the human and non-human objects interact (Krotov, 2017).

The socio-economic environment can be subdivided into consumers, legislative bodies, industry associations, consumers privacy group, entrepreneurs. The consumers are the targeted individuals and organisations which are impacted by the IoT applications. The legislative bodies are the organisations which set and implement laws and regulations regarding the IoT. The industry associations are the personnel whom are creating and maintaining the standards within an IoT connectivity approach. The consumer privacy groups are the individuals and organisation which their primary aim is to protect the consumers from security and privacy violations. Entrepreneurs include the investors who are willing to invest in an IoT application (Krotov, 2017).

In the IoT ecosystem it is important to have a good architecture and design in order for the technology to function effectively. There are four main C's, which are the Categorization, Calibration, Control and Collection(Srivastava, 2015). Categorization may be defined as the ability to classify the objects which are needed in the IoT such as settings, data, application and others. This element can be also used in the other components of calibration, control and collection. Calibration is the ability to adjust according to the various needs of the IoT such as the signalling and also the data within the IoT, in order to achieve the best of the technology which is available. Control is the availability to control the devices which are connected with the IoT, both physically and also virtually, therefore linking more with the other C's of a good IoT architecture. Collection is crucial when developing a successful IoT application where it can successfully pass data to the receivers while also being able to get the data which is needed to be sent. The IoT technology is being vastly used in the retail industry nowadays, and has numerous of functionalities which include: improving the customer experiences in which in-store experiences are shifting to digital experiences, ability to optimize supply chain operations(De Marco *et al.*, 2012) in order to make up to the increasing demands of the consumers, and creating new channels and revenue streams to further improve the organization.

Features

IoT offer a variety of features for retailers. The simple concept of IoT to link simple things together and constantly collects information. This fact leads to two feature of Internet of things; Intelligence and connectivity. Simple Things are connected together and are becoming increasingly intelligent (Chang, Dong and Sun, 2014). The information collected can be about the physical dimensions such as temperature, customer's' movement within the store and consumption to name just a few. Such information will help retailers to optimize product placement, to better meet and satisfy customer expectations and enhance their in-store experience. IoT and the things mentioned above couldn't exist without smart sensors. Their growing use is already affecting and transforming how retailers are implement IoT. Moreover, such feature is offering more connectivity as well as analytics to retailers. In addition, expressing is also another important feature of IoT as it enables connectivity between people and the physical world. It also acts as a mean for retailers to create goods and services that interact intelligently with the real world.

Devices that make up IoT are based on a number of different hardware platforms and



networks. This fact leads to another feature of IoT, which is heterogeneity. Devices are heterogeneous in the sense that they can interact and communicate with other devices platforms through different networks. Additionally, another feature is that IoT are dynamic in their nature. IoT' primary activity is to collect data from its environment and this can be done by the dynamic changes occurring around the devices.

Benefits

IoT can benefit retailers by “enhancing data collection, enabling real-time responses, improving access and control of devices, increasing efficiency and productivity, and connecting technologies” (Weinberg *et al.*, 2015). A challenging aspect that retailers are continuously facing is finding the most profitable customers and giving the deserved special attention to their most important customers. IoT can benefit retailers as it can enhance data collection, thus enabling retailers to make proper customer segmentation and provide personalized offers and promotions to their customers. With the use of RFID chips, sensors and bluetooth beacons retailers can collect data regarding the interaction of customers with store items. Machine learning solutions are then used to push extra information as well as recommendations and special offers on smart displays that can be found within the store.

Retailers are often faced with lack of accurate inventory tracking. Such problems include items placed in incorrect shelves resulting in sales assistants not being able to locate the items customers are looking. This factor might also results in retailers making excessive orders in order to avoid stock outs leading to higher inventory costs and missed sales opportunities (Tan and Karabati, 2013). IoT can be used to tackle such problems as it offers more control and more visibility on inventory items. By creating an inventory management system with the use of RFID chips, sensors and bluetooth beacons, inventory items can be directly connected with database servers. This benefits retailers as they get a clearer picture on the items located at store shelves as well as ensuring that inventory is adequately stocked and reordering items based on the analytics made.

An ever-present challenge that retailers often face is shrinking and fraud from both customers and employees. In order to paint a clearer picture of what takes place in store, retailers can opt for an IoT solution by adding a layer of visibility to inventory items. By using RFIDs and camera feeds in line with machine learning technology, retailers can detect any suspicious movements that might take place in-store. Moreover, such system will discourage anyone who try to obtain items using illegal means as they will be easily detected when compared with traditional

systems that used to rely mainly on human monitoring.

Another benefit that IoT offer to retailer is that retailers gather precise information regarding their customers movement patterns throughout the store. Such information can then be used to better layout their stores in order to increase product exposure. In addition to this, IoT solutions offer retailers a potential shift from the traditional methods when it comes to optimize the use of in-store staff. Sales assistants can only watch so many customers at once resulting in missed sales opportunities. Facial expression recognition algorithms are used to identify whether a customer has been standing too long in the same location and can notify a sales-assistant. Such system can benefit both customers and retailers; customers are getting a better service and retailers are optimizing their staff.

Applications

“The IoT presents an opportunity for retailers to develop a vastly improved ecosystem that connects physical and digital worlds, allowing bidirectional, real-time interaction with consumers both inside and outside the store.” (Gregory, 2015). The amount of data produce by such interactions can help retailers to improve customers' in-store experiences. Such data can be collected in various ways. Using bluetooth beacons can help retailers and sales associates to deliver a high-touch service as these serve up information on regular customers, such as their purchase history and preferences. Another application is the use of sensors. Sensors are used to track customers' movements though out the store. The information collected from sensors can help managers to better layout their stores and place their premium products in high traffic areas. A large retail industry which makes use of such application is Hugo Boss. Other applications that can be used by retailers are smart shelves, smart price tags, smart shopping carts, smart phone applications and contact less payment to name just a few (Gregory, 2015).

Limitations

As highlighted in the previous sections, IoT offer retailers a number of benefits and opportunities to better identify and satisfy customer needs and to expand their market share. However, the effect may be great. Since IoT is a diverse and complex system, any failure that might occur in the software or hardware will have negative and serious implications and consequences on the whole system. In addition to this, even a power cut might cause a lot of inconvenience for retailers who are fully depending on technology. This may results in higher costs as retailers will try to decrease the chance of such events happening by investing in more machinery. Two limitations that we came across in several



literature are safety and security. Weinberg *et al.* (2015) argues that “privacy and security are arguably the most prominent issues; they are at the heart of trust, relationship building, and exchange.” The increase in the amount of data and databases in such complex systems like IoT the effects can be great (Weinberg *et al.*, 2015). Complex systems like IoT might be a subject for hacking and exposition of highly sensitive information about the customers. On the other hand, since IoT might be a new concept for consumers, they may not feel safe since new data, such as their shopping patterns and their tastes, is being collected every day.

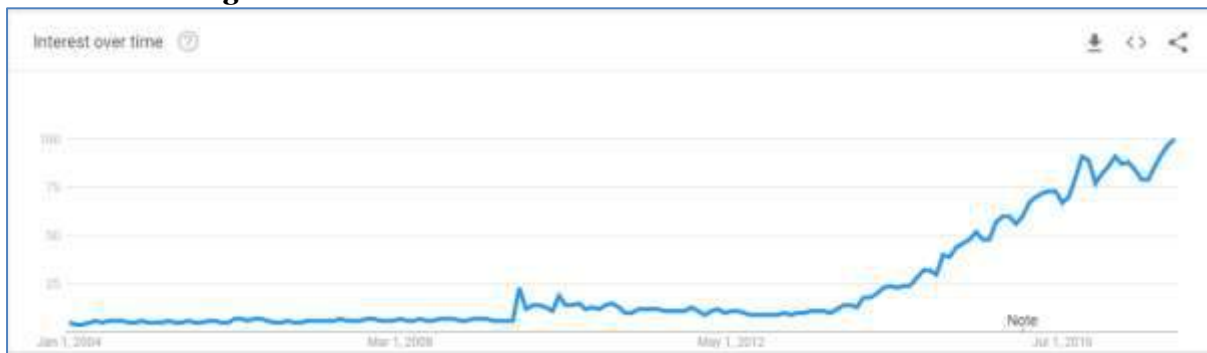
Without any doubt, technology has revolutionized the way we live. Our lives is becoming controlled by technology. It is our part to decide how much of our daily activities we are willing to mechanize and be controlled by technology. This leads to a limitation which is not affecting retailers specifically, but society as a whole is the issue of employment. Without a doubt, IoT

benefitted large industries as it increase productivity with the automation of daily activities. However, the unskilled workers may end up losing their jobs. With the automation of daily activities, there will be fewer requirements from large industries.

Future Perspective

As noted in Gartner’s IT Hype Cycle, IoT has been identified as one of the emerging technologies in Information Technology (Vyas, Bhatt and Jha, 2016). Vyas, Bhatt and Jha(2016)describes a hype cycle as a “way to represent the emergence, adoption, maturity and impact on applications of specific technologies”.It has been forecasted that it will take IoT five to ten years to adapt in market and bring retailers cost efficient solutions. Moreover, IoT in retail is just getting started. It has been estimated that by 2020 there will be 4 billion connected people, \$4 trillion in revenue opportunities, over 25 billion of embedded and intelligent systems and over 50 trillion gigabytes of data.

Google Trends Internet of Things



The above screenshot shows the increase in searches on Internet of Things from 2004 onwards, mainly increasing from 2014 till now.

Internet of Things in Retail





The above screenshot shows the increase in searches on Internet of Things in Retail from 2008 onwards.

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IMPROVEMENT OF MECHANIZMS OF MANAGEMENT OF ACTIVITIES OF HOUSHOLDING AND COMMUNAL SERVICES ENTERPRISES

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ABSTRACT

The article considers the author's approach to the problem of determining the efficiency of housholding and communal services based on various methodological approaches of foreign researchers. On the base of the Quinn-Rohrbach model "Competitive values and organizational efficiency" developed an econometric model of econometric relationships and studied the issues of improving the organizational efficiency of housholding and communal services.

KEYWORDS: *housholding and communal services market, sphere of housholding and communal services, efficiency of the housholding and communal services, quality of services, Quin Rohrbach model, correlation and regression analysis.*

DISCUSSION

The experience of developed countries in the world shows that in order to ensure the effectiveness of the activity of enterprises operating in the field of Housholding and communal services, as well as to ensure the satisfaction of the main consumers with the volume and quality of services provided by the enterprises of the sphere, it is necessary, first of all, to reduce the level of monopolization in the sphere and deepening market relations.

The sphere of housholding and communal services differs from other branches of the sphere of services by its distinctive features, as well as socio-economic relations with differencies of the participants. Because the sphere is engaged in the creation and delivery of vital services to consumers on the basis of market relations, on the one hand, on the other hand, the created services have the property of restoring their ability to work on the basis of satisfying the social needs of consumers.

As a result of the reforms carried out in the field of housholding and communal services in the country in recent years, enterprises of the sphere are united into a single whole system, the delivery of qualified services to the consumers by them is defined as the main goal of the reforms.

There are different methodological approaches to determining the effectiveness of the housholding and communal services sector. Some approaches see improvement in the efficiency of the sector with relatively low capital and rational use of available resources with relatively high service quality while fully satisfying the needs of consumers [1, c-18].

V.Chernyak determines the effectiveness of housholding and communal services not only by the volume of financing and the introduction of additional resources of the material and technical base, but also by saving costs while maintaining or increasing the quality of services [2, p. 18].

In Simionov's research, it is shown that the first of the main tasks of economic analysis of the activities of enterprises of housholding and communal services are the determination of the economic efficiency of labor resources, material resources and financial resources and, in turn, the determination of internal resources in increasing the efficiency of activity [3, p. 179].

It is understood by many researchers as the effectiveness of housholding and communal services the relationship between the cost of economically achieved results (volume of rendered services) and the various resources available in the society.



In our opinion, the effectiveness of providing housholding and communal services is determined by achieving maximum results with the least amount of production and labor force for the benefit of society. At the same time, the effectiveness of housholding and communal services can not only be attributed to the growth of the services provided and the decline in prices, it is also necessary to attach importance to social consequences in determining efficiency.

Taking into account the degree of interconnection of indicators in the form of statistical data related to the sphere of housholding and communal services, it is possible to bring the processes taking place in Uzbekistan in the sphere to the appearance of trends with the help of econometric models, and these trends allow to determine the directions and forecasts of the processes [4].

The analysis of the available statistical data on the area under consideration indicates that the following 6 indicators can be correlated with each other and that there is correlation in these links (Tab. 1).

For econometric analysis, obtained a time series of indicators for the period 2013-2018 years,

since in the system of official statistical indicators, the indicators of the analyzed data for this period of time are available in full.

We determine the link, which expresses the effect of investments on the change in the total area of the housing fund, by defining the factor affecting the volume of investments in real estate listed in the table as well as the indicator of the total area of the housing fund as a resultant factor. The indicator of the total area of the housing fund is determined as a factor affecting the change in the volume of consumption of the next 4 communal resources.

The construction of a trend model of one-dimensional rows of non-dimensional components of time series is carried out in several stages:

1. Aprior (not based on experience) analysis of time series.
2. To check the assumption (hypothesis) of the presence of trend in the time series.
3. Determination of the main characteristic and parameters of the change of the detected model.
4. Analysis of random variables (component).
5. Formation of a generalized model.

Table 1
Key indicators of housholding and communal services market activity ¹

№	Indicators	Years					
		2013	2014	2015	2016	2017	2018
1	The volume of investments, billion. sum	211,1	268,1	204,6	416,1	1356,8	1132,8
2	Total area of the housholding fund, million m ²	457,9	466,2	477,1	490,8	507,5	533,3
3	The volume of electricity transferred to the consumers, million. kWt/hour	12045,8	12222,5	12548,7	11195,7	12779,8	13593,8
4	The volume of natural gas transferred to the consumers, million m ³	10469,4	11321,0	9572,1	8387,5	9427,1	9696,8
5	The volume of heat energy transferred to the consumers, thousand kcal	7234,2	8463,3	8641,9	7992,4	7718,5	7661,6
6	The volume of drinking water transferred to the consumers, million m ³	953,2	953,0	940,9	893,2	882,6	835,3

¹ Official data of the State Statistics Committee of the Republic of Uzbekistan.



At the next stage of the trend analysis, the hypothesis of the presence of a trend is checked. There are many criteria that differ in the strength and complexity of the mathematical approach in order to verify the presence of a trend in the indicators of the observed time series. These criteria allow to determine the main trend in the development of the main indicators of the houtholding and communal services sector over time, as well as the trend in terms of species – the average and dispersion trend [5,6,7].

One of the methods that allows to determine the presence of a trend is the cumulative *T*-criterion. This method covers on its own basis the calculation and analysis of the statistical description of Y_t series levels, calculated by the cumulative sums of deviations from the average of Y and the ratio between these deviations. In the time series we are analyzing, the hypothesis is put forward that there may not be a trend that is checked based on the *T*-criterion. The hypothesis that there is no trend based on the data obtained on the time series of indicators of the houtholding and communal services sphere is

rejected, which means that there are main trends in the time series that we are studying [8].

In order to characterize the trend of indicators of the houtholding and communal services sphere, developed trend models on the fluctuations of the six main indicators, which used different degrees of multiphads through the analytical leveling method.

The choice of the connecting form of the models can be made on the basis of the criterion, which is taken as the sum of the squares of the deviations of factic values from the values calculated by the trend equation. Through a straight-line connecting set, selected the minimum value of the criterion, which corresponds to it.

To characterize the trend of indicators in the field of houtholding and communal services, developed trend models using various degrees of multiplicity through the analytical leveling method.

On the basis of trend models, the list of indicators of the prospects for the development of the sphere of houtholding and communal services in the Republic of Uzbekistan in 2019–2021, presented as well as the most convenient functions for their calculation (Tab. 2).

Table 2**Regression models and Forecast indicators of development of the houtholding and communal services sphere in the Republic of Uzbekistan in 2019–2021**

№	Display name	Fashion Model	Years		
			2019	2020	2021
1.	The volume of investment, billion. sum	$x_{vi} = 231,03 \cdot t - 210,36$	1406,85	1637,88	1868,91
2.	Total area of the housing fund, million m ²	$x_{gf} = 460,611 + 0,047 \cdot x_{vi}$	526,73	537,59	548,45
3.	The volume of electricity transferred to the consumers, million kWt/hour	$y_{etc} = 18,04 \cdot x_{vi} + 3577,08$	13100,4	13275,2	13493,1
4.	The volume of natural gas transferred to the consumers, million m ³	$y_{ngtc} = 18105,09 - 16,97 \cdot x_{vi}$	9166,5	8982,2	8797,9
5.	The volume of heat energy transferred to the consumers, thousand kcal	$y_{hetc} = 9771,84 - 3,72 \cdot x_{vi}$	7812,4	7772,0	7731,6
6.	The volume of drinking water transferred to the consumers, million m ³	$y_{dwtc} = 1721,59 - 1,66 \cdot x_{vi}$	847,2	829,2	811,2

The prospect indicators analyzed through the method used in the study indicate that they can be used in practice.

The first three (2 indicators of the influencing factor and 1 aggregate indicator) predicted indicators (1,2,3-models) show that if they show growth in 2019-2021 years under the same norm, without large fluctuations, then the next three

aggregate indicators (2,3,4-models) will have a certain downward trend for the next three years.

Dynamics of changes in the period of 2013-2021 of the calculated indicators for the application of the volume indicator of investments in real estate, which affects the change in the total area of the housing fund for the purpose of practical use of the results of forecast indicators, is presented in Figure 1 the dynamics of changes in the period of 2013-2021

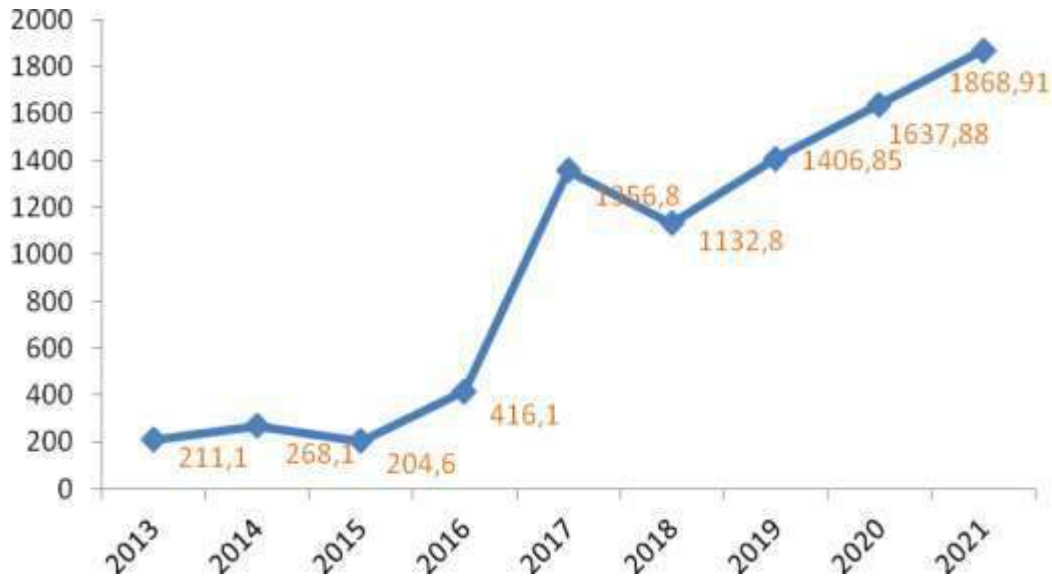


Figure 1. The volume of investments in real estate in the field of Housing and communal services (billion. sum)

It is seen from this picture, the volume of financial resources allocated from various sources for the construction and renovation of real estate (funds of enterprises and organizations, bank loans, other borrowed funds, funds of the population, foreign investments and loans, as well as funds of the state budget) is in reality growing year-on-year, on a regular basis. The analysis shows that, the volume of investments in real estate decreased in 2015, rose sharply in 2017 and the volume of investments made in 2018 decreased compared to the previous year. Based on the forecast indicators, the trend of regular growth in the volume of investments in real estate in 2019-2021 years is expected.

The organizational mechanism of management includes management functions, the organizational structure of management, personnel, management techniques and technology, management decisions, the scientific organization of

Labor, the legal basis of management and others. Organizational elements of management include management objectives, principles, functions, methods, techniques, technology and personnel, management structure and information[9, pp. 1-2].

The economic pillars of management rely on economic laws, principles, methods of management, as well as the purpose of economic activity, profit, property relations and other foundations. The economic mechanism of management is aimed at solving specific socio-economic, technological, socio-psychological problems that arise in the process of activity [10, pp. 103-106].

The management system of the sphere of housholding and communal services is made up of a single entity that performs functions interrelated with the functions of other elements by the management element (Figure 2).

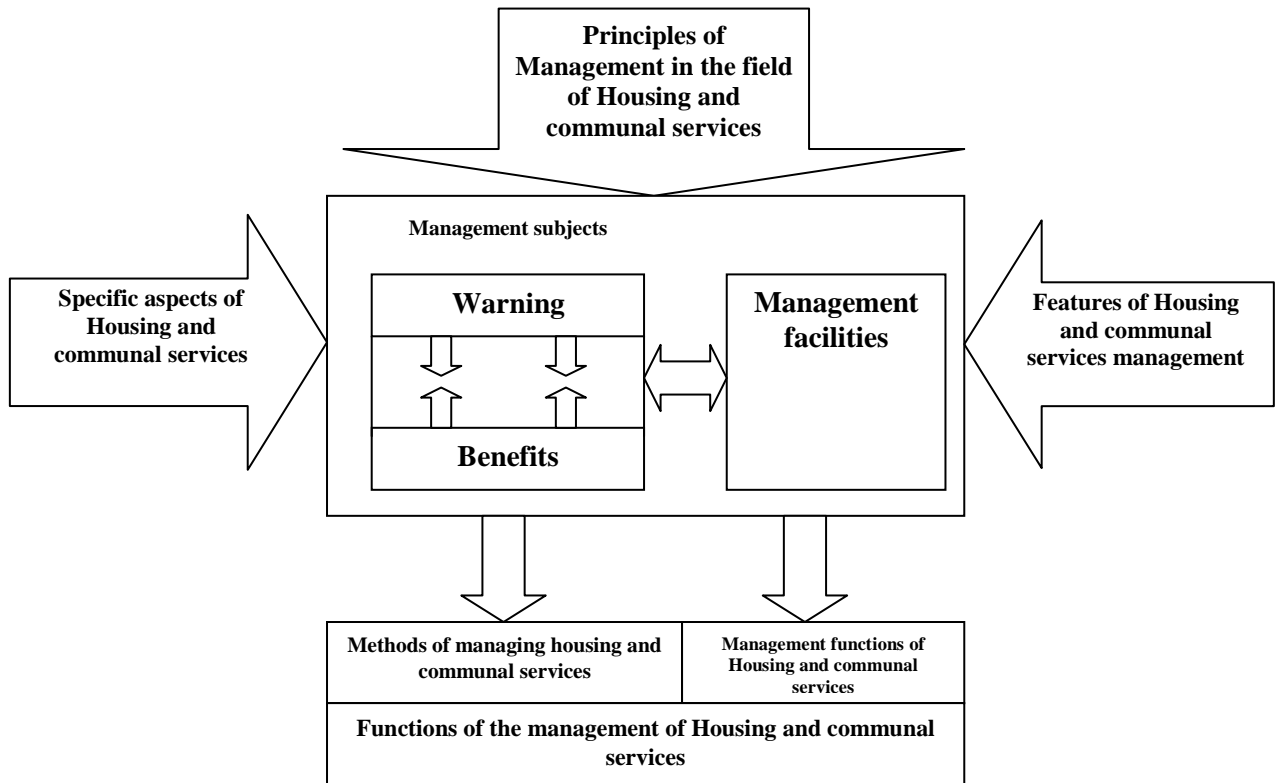


Figure 2. Mechanism of management of the sphere of housholding and communal services²

² Developed by the author.



The figure shows that, management methods are selected based on the principles of management of the industry, the specific features of services, the characteristics of management.

As a scientific innovation in the study, the Kwin-Rorbax model has been considered from the point of view of selling services in the housing and utilities sector and it shows the level of satisfaction of the interests of each participant of the system.

The “competitive values and organizational effectivenessadorlik” model, developed by R.Kwin and J.Rorbach consists of four quadrants consisting of four approaches to organizational effectiveness.

1-quadrant is the establishment of internal relations, which determines the interaction of the participants of the system. In general, the fact that the

sphere of housholding and communal services is composed of participants in large quantities and directions requires clarification of their mutual agreements and relations on the satisfaction of the interests of each of these participants.

2-quadrant is an adaptation approach to the external environment, which, taking into account the characteristics of the network, determines the conditions of competition in the whole system. Given the low investment attractiveness of the housing and communal services sector today, as well as the need to attract large amounts of investment for modernization and development, one can more accurately imagine the importance of this part of the model [11, p. 87].

FLEXIBILITY

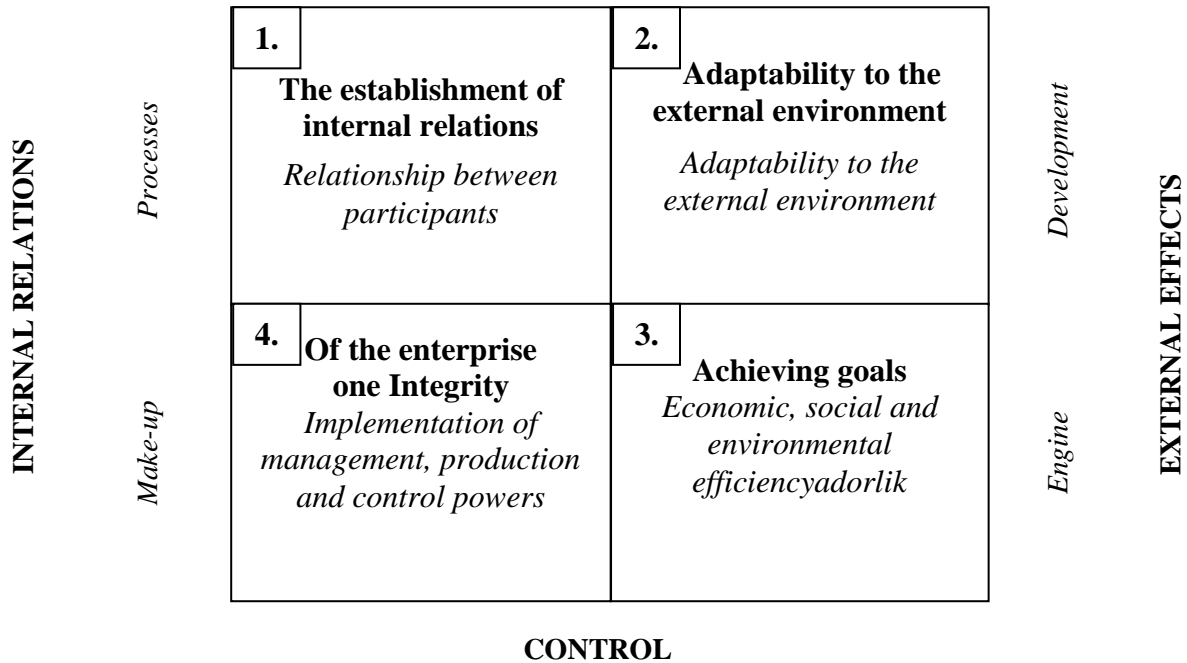


Figure 3. Application of the model of “Competitive values and organizational efficiency” of Kwin-Rorbach in the field of housholding and communal services³

³ Developed by the author.



3-quadrant is an approach to achieving goals, which allows to determine the highest possible results that can be achieved based on the set goals. In the process of creating and providing services in the field of husholding and communal services, participation of a large number of subjects and directions, as well as their relations in economic, technological, social and environmental issues, the model ensures the development of qualified and effective decisions for optimal solution.

4-quadrant is the approach of an enterprise as a whole, reflecting the uniqueness of the management system in the stages of achieving the set goals.

Using a clear system of indicators in determining the effectiveness of organizational decisions in the sphere, the application of the Kwin-Rorbach model ensures an increase in the level of organizational efficiency at the enterprise and, in general, at the system level.

In general, based on the above points and the results of the research, the husholding and communal services sphere and the improvement of the management system in enterprises operating in this system, and in this way the application of modern management models and principles in improving the efficiency of the activities of enterprises and the quality of the services provided will lead.

During the carriage of this research, formulated the following suggestions and recommendations:

- on the basis of econometric analysis of the time series of statistical indicators reflecting the result of the processes in the husholding and communal services sphere in the country, determined trends of changes in the processes. These analyses lead to an increase in the consumption of electricity from communal resources and a decrease in the consumption of natural gas, thermal energy and drinking water, as well as an increase in the tendency of increasing the total area of the housing fund, which affects the change in utility resources (Y) supplied to the population consumption [12,13];

- on the base of the analysis of the process of market relations in the husholding and communal services market, developed a model for the implementation of tasks for the formation of market relations in the sphere and recommended to introduce this model in the process of reforms carried out [14,15];

- recommended to use the "Competitive values and organizational efficiency" model of Kwin-Rorbach, which increases organizational efficiency in the sphere of husholding and communal services, in particular, enterprises operating in the field.

Using of the above method of assessing the state of this sphere in the process of reforms carried out in the field of husholding and communal

services in Uzbekistan today leads to the fact that structural changes are addressed to the regions in which they are targeted and where changes are required, and this, in turn, makes it possible to correctly specify the measures to improve the level of improvement of the managed areas.

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PSYCHOLOGY OF RISK AND RETURN – PERSPECTIVES OF INDIAN WOMEN INVESTORS

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ABSTRACT

- *Women are increasingly seen as active agents of change, the dynamic promoters of social transformations that can alter lives of both women and men.*

– Amarty Sen (Renowned Economist from India).

The origin of the Indian idea of appropriate female Behaviour is described by Manu in 200 BC: as “by a young girl, by a young woman, or even by an aged one, nothing must be done independent, even in her own house”. Their role typically restricted only for cooking, childcare, laundry, cleaning and the collection of water, fuel and wood. Women are continued to be excluded in social, economic and political domains.

In settings where socio cultural norms restrict women’s mobility, their interactions with members of the opposite sex and their ability to attend trainings or receive formal education, women’s access to information, institutions and markets is compromised. Despite this, major changes have occurred in the status of women in India.

Today’s women are outpacing men in several areas and have high offices including that of the president, Prime Minister, Chief Ministers and Governors of the states. Surprisingly investing is one such area which still proves gender gap between men and women. However, few studies have been carried out on gender differences in investment behaviour and women investment behaviour, it was evidenced from those studies that women are more risk averse than men.

This study is an attempt to understand the psychology of Indian women towards Risk –Return characteristics of various investment avenues. For the purpose of study 480 Women investors have been surveyed and comprehensive view on their perspectives towards risk – return characteristics have been presented in this paper.

INTRODUCTION

The origin of the Indian idea of appropriate female Behaviour is described by Manu in 200 BC: as “by a young girl, by a young woman, or even by an aged one, nothing must be done independent, even in her own house”. Their role typically restricted only for cooking, childcare, laundry, cleaning and the collection of water, fuel and wood. Women are continued to be excluded in social, economic and political domains.

21st century and Indian women have come a really long way in terms of empowerment and leaving their signs in the country. The status of women in India

has been subject to many great changes over the few millennia. Today’s women are outpacing men in several areas and have high offices including that of the president, Prime Minister, Chief Ministers and Governors of the states. There are 42.8% women who earn equal to or more than their husbands.

Surprisingly investing is one such area which still proves gender gap between men and women. Because, still there are women outside with low confidence and believe they have less knowledge about finance than men when it comes to investing. Few literatures on women finance literacy evidenced women



consistently score lower than men on measures of financial literacy, and this gender-based gap can negatively impact the financial well-being of women.

However, few studies have been carried out on gender differences in investment behaviour and women investment behaviour, it was evidenced from those studies that women are more risk averse than men and thus when it comes to investing they invest more conservatively and less in amounts than men, frequency of investment in female is lesser when compared to the male (Dr. Monica Sharma, 2013)⁴³. Working women are conservative in nature. And they lack the knowledge needed to make proper decision about their finance (Juwairiya P P, 2014)⁴⁴. Social norms, family responsibilities have negative impact on investment activities of women (Diana J Beal et. al., 2015)⁴⁵.

But, it is important to note that the studies on gender differences in investing have been mostly concentrated on data from developed countries, especially from the U.S. And it is widely acknowledged that women in developed countries differ drastically in many aspects, such as beliefs, life styles, behaviours, habits, personal characteristics, etc. and it may be expected that investment attributes of women living in developed countries differ from investment attributes of women living in the emerging and developing country like INDIA, where the status of women is typical.

BEHAVIOURAL BIASES

Research in psychology has evidenced and documented a range of decision-making behaviours called biases. These biases can affect almost all types of decision-making, but have particular implications in relation to financial activities. These biases are related to how investors process information to reach decisions and the preferences they exhibit in the process of investment.

However, if we understand them and their effects, one may be able to reduce their influence and learn to work around them. The present study attempts to identify psychology of risk and return from the perspective of Indian Women Investors.

The following is the summary of key biases and their implications for investors, portfolio managers and advisors.

Over Confidence

Psychology has found that humans tend to have unwarranted confidence called as over confidence in their decision making. In essence, this means having an high view and overstatement of one's own abilities. This trait is universal, affecting most aspects of individual's lives.

Self Attribution Bias

Overconfidence may be fuelled by another characteristic known as 'self-attribution bias. In essence, this means that individuals faced with a positive outcome following a decision, will view that outcome as a reflection of their ability and skill. However, when faced with a negative outcome, this is attributed to bad luck or misfortune.

Loss aversion - Attitudes to Risk and Reward

Established financial theory focuses on the trade-off between risk and return. Risk from this perspective means variability of outcomes and riskier investments should, offer higher rates of return as compensation for higher risk.

Behavioral finance suggests investors are more sensitive to loss than to risk and return. Some estimates suggest investors weigh losses more than twice as heavily as potential gains. The idea of loss aversion also includes the finding that investors try to avoid locking into a loss.

The Disposition Effect

Professors Shefrin and Statman developed the idea of loss aversion into a theory called the 'disposition effect', which indicates that individuals tend to sell winners and hold losers. In later research, Professors Barber and Odean tested this idea using data from a retail brokerage. They found that the tendency to sell winners and hold losers harmed investment returns.

Anchoring

Anchoring describes how individuals tend to focus on recent information and give less weight to longer time periods. Anchoring indeed be a source of wrong decisions, as investors base their decisions on their reference groups. The only way of avoiding anchoring bias is rigorous critical thinking while making investment decisions, there is no substitute than this.

Representativeness/Stereotyping

The notion of 'representativeness' reflects the case where decisions are made based on a situation's superficial characteristics rather than a detailed evaluation of the reality. Another way of stating this would be saying that decisions are made based on stereotypes.

Conservatism

'Conservatism' describes the idea the decision maker clings to an initial judgment despite new contradictory information. Or they only partially adjust their view in light of the new information. Investors who buy shares in a high profile company may be slow



to adjust their view of the company's prospects even after the company's profitability deteriorates.

These biases result in significant difference in the process of investment as stated in portfolio theories and Investment in practice.

OBJECTIVE OF THE STUDY

The present study intended

1. To identify the level of awareness of Indian Women Investors towards various Investment avenues

2. To understand the perception of Indian Women investors towards Risk and Return characteristics of various investment avenues.

This study presents the irrational perception of women towards various investment avenues.

Sampling Design:

For the purpose of achieving the objective 480 Women investors were surveyed using a structured questionnaire. Samples have been selected using convenient sampling method. Demographical profile and Socio-economic profile of the selected working women is presented in some other research papers of the researcher (References 14, 15 and 16).

DATA ANALYSIS AND DISCUSSION OF RESULTS

Table 1 – Showing Respondents Awareness about availability of Varieties of Investment Avenues

SL.NO.	Are you aware of following Investment Avenue?	Yes		No	
		Frequency	%	Frequency	%
1	Bank deposits	478	99.60	2	0.40
2	Post office deposits and savings	362	75.40	118	24.60
3	Insurance	348	72.50	132	27.50
4	Real estates	122	25.40	358	74.60
5	Mutual funds	190	39.60	290	60.40
6	Equity and stock market instruments	40	8.30	440	91.70
7	Money market instruments(CD's, CP,s & notes)	30	6.30	450	93.80
8	Derivative instruments (options, Futures)	32	6.70	448	93.30
9	Government securities	220	45.80	260	54.20
10	Bonds and Debentures	142	29.60	338	70.40
11	Gold/Silver/other metals	258	53.80	222	46.30

Source: Field Survey

Remarks: The total numbers of responses are not equal to 480 since a single respondent may be aware of more than one avenue listed in the table and hence can opt for more than one response.

The contents of the above table numbered 5.3 are self explanatory relating to the awareness level of respondents with regard to different investment avenues available in the market. However few figures of the table have explained. Around 99.60% of

respondents were aware of Bank deposits. Nearly 72 to 75% of respondents were aware of insurance and post office deposits. 45.80% and 39.60% of respondents were aware of Government Bonds and Mutual funds. And very negligible percentages of respondents were aware of money market instruments, derivatives and equity stocks. Bank deposits, Insurance schemes and Post office deposits are the most popular investment avenues among selected working women.

**Frequency Distribution of responses against the Risk associated with Investment Avenues**

SL.NO.	Risk Associated with Avenues (%)	VH	H	M	L	VL
1	Bank deposits	23.3	16.3	21.7	27.9	10.8
2	Post office deposits and savings	15.0	23.3	12.5	43.3	5.8
3	Insurance	7.1	14.6	45.4	30.4	2.5
4	Real estates	37.5	9.2	18.8	26.3	8.3
5	Mutual funds	24.6	11.7	42.5	12.1	8.3
6	Equity and stock market instruments	26.3	6.7	42.5	13.3	11.3
7	Money market instruments(CD's, CP,s & notes)	25.8	9.6	35.4	18.3	10.8
8	Derivative instruments (options, Futures)	18.8	10.0	45.0	15.4	10.8
9	Government securities	14.2	13.8	18.8	37.1	16.3
10	Bonds and Debentures	20.8	14.6	27.5	27.1	10.0
11	Gold/Silver/other metals	18.3	15.4	31.3	25.4	9.6

Source: Field Survey

(VH= Very High, H = High, M = Moderate, L = Less, VL = Very Less)

Table no. 5.11 depicts risk perception of respondents towards different investment avenues. The figures given in the table above are self explanatory. However few significant figures are described as follows.

Bank Deposits: 29.7% and 16.3% of respondents opined that bank deposits are less risky and very less risky avenue. Put together 46% of respondents opined that bank deposits are good avenues to invest to those who don't want to take risk. And 21.7% opined bank deposits are medium risk assets. Another, 23.3% and 10.8% (totally 34.1%) opined bank deposits are risky assets since investment in private banks are risky.

Post office Savings and Deposits: Majority i.e., 43.3% and 5.8% (totally 49.1%) opined post office deposits are less and very less risky respectively. Whereas, 15% and 12.5% of respondents (sum totally 27%) opined post office savings and deposits carry very high and high risks respectively.

Insurance: according to 45.4% of respondents insurance carry medium risk. The respondents opined the risk in relation with hedging.

Real estate: 37.9% and 9.2% (totally 47.1%) opined investment in real estates involves high and very high risk.

Mutual Funds: according to 42.5% of respondent's Mutual funds carry medium risk. And another 24.6% and 11.7 % (totally 36.3%) opined investment in Mutual funds involves very high and high risk respectively.

Equity and stock market instruments: around 42.5% opined Equity stocks carry medium risk and

another 26.3% and 9.6% (totally 35.9) of respondents opined equity stocks are highly risk assets.

Money market instruments: around 25.8% and 9.6%(totally 35.%) of respondents found money market instruments as high risk and risky avenues respectively and another 35.4% found them as medium risk carrying avenues.

Derivatives: Majority i.e., 45% of respondents' opined derivatives carry medium risk and another 18.8% and 10% put together 28.8% opined that derivatives carry high risk.

Government securities: Good number of respondents i.e., 37.1 and 16.3% (totally 53.4%) agreed that the government securities are less risky and very less risk avenues respectively.

Debentures: Researcher found mixed opinions in this case. According to 27.5% of respondents debentures attract medium risk. And another 27.1% opined that these are less risky avenue. And another 10% agreed that these are highly less risky avenues.

Gold/silver/other metals: According to 31.3% of respondents' investment in these avenues carry medium risk and another 25.4% and 9.6% of respondents opined that these avenues are less risky and highly less risky assets respectively.

As per the survey results Bank deposits, post office deposits, Insurance and Government securities were considered as risk free assets for investment, while, investment in mutual funds, derivatives, debentures, gold/silver and other metals carry medium risk. On the other hand investment in money market instruments and real estates were considered as high risk carrying instrument by the selected working women.

**Frequency Distribution of responses against the Return associated with Investment Avenues**

SL.NO.	Return Associated with Avenues (%)	VH	H	M	L	VL
1	Bank deposits	6.7	21.7	20.0	22.9	28.8
2	Post office deposits and savings	5.4	32.1	16.7	15.4	30.4
3	Insurance	6.3	25.0	36.3	21.3	11.3
4	Real estates	24.2	34.2	27.5	11.3	2.9
5	Mutual funds	19.6	32.9	20.8	25.4	1.3
6	Equity and stock market instruments	23.8	12.1	17.5	40.4	6.3
7	Money market instruments(CD's, CP,s & notes)	22.5	11.7	34.6	25.0	6.3
8	Derivative instruments (options, Futures)	20.8	12.1	29.6	31.3	6.3
9	Government securities	9.6	11.3	40.8	28.3	10.0
10	Debentures	17.1	16.7	32.9	26.7	6.7
11	Gold/Silver/other metals	17.5	28.8	25.0	25.0	3.8

Source: Field Survey

(VH= Very High, H = High, M = Moderate, L = Less, VL = Very Less)

Table no. 5.12 betrays perception of working women about returns associated with different investment avenues. The figures given in the table above are self explanatory. However a few significant figures are used to describe the data.

Bank Deposits: Around 28.8% and 22.9% (totally 51.7%) of respondents opined that bank deposits earn very less and less return respectively.

Post office Savings and Deposits: The researcher found mixed opinions in this case. As explained in the table around 32.1% perceived that post office savings and deposits attract good returns whereas another 30.4% opined that these avenues earn very less rate of returns.

Insurance: Around 36.3% of respondents opined that insurance earns medium returns.

Real estate: 34.2% and 24.2% (totally 58.4%) opined that real estate earns high and very high rate of returns respectively. Another 27.5% of the respondents opined that real estate earn medium rate of return

Mutual Funds: According to 32.9% and 19.6% (totally 52.5%) of respondent's Mutual funds carry high and very high return. And another 20.8% and 25.4 % opined that Mutual earn medium and less returns respectively.

Equity and stock market instruments: Majority i.e., 40.4% of respondents perceived that equity stock earns lower rates of returns. Another 23.8% and 12.1% of respondents' opined equity stock earns very high and high rate of returns respectively.

Money market instruments: 34.6% and 25% of respondents opined that money market instruments earn medium and lower rates of returns. And another 22.5% and 11.7% (totally 34.2) of respondents are aware that money market instruments earn very high and high rate of returns.

Derivatives: 3 .1% conceived that derivatives earn less. Another 29.6% said derivatives are medium earning instruments and 20.8 and 12.1% (totally 32.9%) of respondents opined that they earn high and very high returns respectively.

Government securities: Good number of respondents i.e., 40.8% opined government securities carry medium rate of return. Another 28.3% respondents perceived that these avenues earn less rate of return.

Debentures: 32.9% and 26.7% of respondents' opined debentures earn medium and less rate of return respectively.

Gold/silver/other metals: Researcher found mixed results even in this case 28.8% and 17.5% of respondents opined that these avenues earn high and very high returns, another 25% said that they earn medium returns whereas, another 25% of respondents opined that they earn less rate of return.

As per survey results Bank deposits, post office deposits, insurance, derivatives investment in gold/silver and other metals yield less rate of returns. Investment in debentures, government securities were considered as moderately yielding avenues. Wherein, Investment in money market instruments, mutual funds and real estates were considered as highly yielding investment avenues by the selected working women.

**MULTI CRITERIA DECISION ANALYSIS (RANK ORDERING) OF DATA BASED ON WEIGHTED MEAN VALUES (WMV)****Ranking of level of Awareness towards various Investment Avenues by the selected Working Women**

SL.NO.	Awareness towards	WMV	Ranks
1	Bank deposits	1	I
2	Post office deposits and savings	0.75	II
3	Insurance	0.73	III
4	Real estates	0.25	VIII
5	Mutual funds	0.4	VI
6	Equity and stock market instruments	0.08	IX
7	Money market instruments(CD's, CP,s & notes)	0.06	XI
8	Derivative instruments (options, Futures)	0.07	X
9	Government securities	0.46	V
10	Bonds and Debentures	0.3	VII
11	Gold/Silver/other metals	0.54	IV

Source: Field Survey

The above table depicts the ranking of investment avenues from most popular to least popular among working women. The table is self explanatory however, a few significant figures are explained. Bank deposit was ranked as top I popular avenues, by the working women. Post office deposits and insurance were ranked

as II and III popular avenues respectively. Gold/silver/other materials, Government Securities and Mutual funds were the next popular avenues with ranks of IV, V and VI respectively. Money market instruments were the last popular avenue among working women.

Ranking of Risk perception towards investment avenues by the selected Working Women (from low to high)

SL.NO.	Risk Associated with	WMV	Rank
1	Bank deposits	2.73	IX
2	Post office deposits and savings	3.02	III
3	Insurance	3.07	II
4	Real estates	2.59	XI
5	Mutual funds	2.68	X
6	Equity and stock market instruments	2.77	VIII
7	Money market instruments(CD's, CP,s & notes)	2.79	VII
8	Derivative instruments (options, Futures)	2.9	VI
9	Government securities	3.27	I
10	Bonds and Debentures	2.91	V
11	Gold/Silver/other metals	2.92	IV

Source: Field Survey

The above table depicts the risk perception towards various investment avenues. As per the figures government securities were regarded as least risky asset among all other avenues (ranked as I). Insurance was

ranked as the second avenue with less risk character. Insurance and gold/silver/other materials were regarded as III and IV less risky assets. Real estate considered as the most risky asset as per the ranks order of II.

**Correlation between Psychological factors and Investment Preference**

Psychological factors (IV)	Investment preference (DV)										
	BD	POD	IS	RE	MF	ES	MMI	DI	GS	Deb.	G/S/O M
Confidence Level		-.102*			.025*			.018**			.167**
Investor Optimism	-.103*		-.027*	.212**		.066**	.126**		.145*	.077**	
Conservatism		-.209*			-.047*			.038**			-.071**
Investor Beliefs		.090*	.027*					.078**	-.101*		.154**

Remarks: **. Correlation is significant at the 0.01 level (2 tailed)

*. Correlation is significant at the 0.05 level (2 tailed)

(**BD**-Bank Deposits, **POD**-Post Office Deposits, **IS**- Insurance, **RE**-Real Estate, **ES**-Equity Shares, **MMI**- Money Market Instruments, **DI**- Derivatives, **GS**-Government Securities, **Deb.** - Debentures, **G/S/OM** - Gold/Silver/Other Metals)

The table above reveals the correlation between psychological factors and investment preference by the investors. The figures above reveal the strong correlation between investors' Psychological factors and investment preference by the investors. The highest positive correlation exists between investors' beliefs and preference towards investment in mutual funds as indicated by the 'r' value .733. The next highest, negative correlation is identified with investors' beliefs and investment preference towards equity shares as evidenced by the 'r' value of -.428. The r value of -.369 signals the negative correlation between investor beliefs and investor preference towards investment in real estate. Investor optimism is directly correlated by the r value of .273 with that of investment preference towards derivatives. The r values of .220 and .212 indicate the positive correlation towards confidence level and investment preference towards insurance and investor optimism and investment preference towards real estate's respectively. As witnessed by the figures Investors' beliefs play vital role in investment decision making. Selected working women who are not optimistic have negative opinion towards investment in real estates and equity instruments as the level of risk involved in these avenues is high. Optimistic investors also prefer to invest in avenues yielding capital appreciation and good returns like real estates and mutual funds.

SUMMARY OF FINDINGS AND CONCLUSION

The selected Working women perceived that they have average knowledge towards availability of various investment avenues and stock market mechanism. But it is observed that working women know less than an average investor towards the availability of various investment avenues and stock market mechanism.

The choice of investment avenues depends on the perception towards risk and return associated with the investment avenues by the working women. Investment in real estates and equity and money market instruments are considered as the most risky avenues by the investors. Investment in Insurance and post office deposits are considered as less risky assets by the working women. Whereas derivatives, debentures and mutual funds are regarded as moderate risky assets.

Return on the asset is another factor influencing investment decision by the working women. Bank deposits, post office deposits and insurance are considered as less yielding avenues, derivatives and debentures are considered as moderately yielding avenues whereas, real estates, mutual funds and equities & money market instruments are considered as high yielding revenues among the available avenues by the working women.

Psychological factors of the working women highly correlated with the choice of Investment Avenue and the preference towards investment avenues.



Psychological factors have negatively correlated with investment preference towards avenues carrying high level of risk like real estates and money market instruments and positively correlated with preference towards investment in mutual funds.

Investor's optimism positively correlated with investment in stock market instruments, long term avenues and avenues yielding capital appreciation. And optimism negatively correlated with investment in post office and government securities. Working women's optimism and confidence level have the highest correlation with investment objectives of the working women.

Investor's beliefs have significant correlation with the choice of investment avenues by the working women. Where investor beliefs has negative influence on investment in debentures, derivatives and money market instruments.

Conservatism has high correlation with the choice of investment avenues and objectives of investment by the working women. Whereas, conservatism positively correlated with investment in bank deposits, post office deposits and insurance. Conservatism positively correlated with the objectives of liquidity and marketability of their avenues by the working women.

CONCLUSION

Study on Investment Behaviour is a hot cake within the academic community. Behavioural finance is relatively a new area of study, which ramified from rational behaviour in investing. Many research studies have been conducted in developed countries have proved that there is great impact of Risk perception on the investment decision of investors in general. Few studies on gender difference in investment decisions evidenced that women are significantly different than men in making investment decisions. And it is widely acknowledged that women in developed countries differ drastically in many aspects, such as beliefs, life styles, behaviours, habits, personal characteristics, etc. and it may be expected that investment attributes of women living in developed countries differ from investment attributes of women living in these emerging and developing countries like India, where the status of women is typical. The study attempted to identify the level of awareness and perception of Indian Women Investors towards various Investment Avenues. The Study found the significant variation in the perception and the actual risk -return characteristics of the avenues; this is due to lack of financial literacy and participation in investing activities.

Hence it is suggested to the financial service providing institutions to conduct continues and effective investor education programmes to enhance the level of awareness of Women towards the nature of various investment avenues and should conduct continuous behavioral studies to devise appropriate strategies to bring the women investing community to the main stream.

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POSSIBILITIES OF USING THE CRIMINALISTIC RANGE WHILE TRAINING LAWYERS AT THE HIGHER MILITARY EDUCATIONAL INSTITUTIONS

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ANNOTATION

This article studies the role of forensic landfills in the training of cadets who study in military educational institutions, and the importance of these innovative technologies in the educational process based on the study of the practical experience of countries around the world. Proposals and recommendations for improving the forensic landfills have also been developed.

KEYWORDS: *polygons, visual observations, seizures, research, evidence, inspection, experiment, simulation, interactive method.*

INTRODUCTION

It is known that the material and technical support of the educational process in any university including the military is an indispensable condition for the quality of training of modern specialists. The term "polygon" has several meanings "(from the Greek poly many and gonia - angle). 1. A large unpopulated area that serves as a place for experimental or training sessions and exercises of special troops, a shooting range (military) an artillery range. 2. Location of fortifications in the form of a polygon (military). Fortress polygon. 3. The same as a polygon (Mat. rarely)".

The first meaning is the reference for the origin of the term polygon in the practice of teaching criminology. As follows from this value, the forensic polygon must have a significant size in order to work out the implementation of simulated situations in conditions close to reality.

The forensic polygon is defined as "a training complex designed for practical training and exercises for detecting, removing, fixing and examining evidence". Objects placed on a forensic test site allow you to simulate the situation of various investigative actions: inspection, investigative

experiment, search, etc., train the assessment of traces in the complex and so on.

A forensic polygon is created indoors and (or) in an open area. The situation of a forensic polygon can be stationary (living room, storage room, etc.) or changeable (sliding partitions, replaceable sets of items, etc.) [1].

In connection with the development of modern information technologies in the teaching of criminology, the term "polygon" has acquired a different content. It is understood as information data banks and computer programs that students can use to search for information, formulate crime stories, fill out documents, train the work of the indicative part of investigative actions (inspection of the scene, putting forward investigative versions of the subject of the crime, organizing the plan of investigative and operational activities, taking into account the probable portrait of the criminal), etc [2]. Virtual polygons have certain advantages: they are compact and allow multiple users to access the program at once, but simulating a real situation has a significant advantage over computer programs, as it allows students to become participants in events themselves.



In the scientific and methodological literature, considering the problems of polygons that physically imitate the environment in which investigative actions are conducted, the authors mainly refer to the experience of Chinese universities [3].

METHODOLOGY

Training tasks that are solved at training forensic training grounds are diverse, for example: inspection of the scene of an incident (in the street, indoors); study of traces left by a criminal; detention of suspects in the commission of a crime, etc. Due to the fact that the teacher should be able to evaluate the practical activities of students at the training ground, it should be visible. The polygon design can be varied. It can consist of several blocks, and access to visual observation of students' activities can be carried out both on-site and at a remote distance (from a raised platform, ladders, etc.) [4].

In recent years, this type of landfill has started to appear in Russian universities. Their system blocks often include both outgoing and different blocks. Thus, the Interregional open social institute (Yoshkar-Ola) presents the following blocks: "residential apartment", "shopping hall", "office of the investigator" [5]. In the Barnaul law Institute of the Ministry of internal Affairs of Russia, the objects of the complex are represented by "living room", "office of the firm", "café-bar" and "city street"[6]. Perm state University has a "living room" and "office space"[7].

Thus, when creating forensic polygons, universities not only proceed from their financial and technical capabilities, but are also guided by the statistics of the most typical criminal cases for this region.

The possibility of using training methods is determined by the material and technical equipment of blocks or installations. As a rule, material and technical support includes items of furniture (tables, chairs, cabinets) and household items (dishes, carpets), funds necessary for professional activities in any field (cash registers, racks, consumer goods, computers), weapons, mannequins, etc.

CONCLUSION

In addition to these conventional tools, modern forensic tools are also used: packaging tools for practicing practical skills in detecting and removing finger marks from various surfaces (for example, dust traces), fingerprinting tools, materials for making plaster casts, and tools for examining documents that have traces of forgery.

These material and technical means contribute to the use of the following traditional and interactive methods, filled with forensic content:

- discussion of completed practical actions to investigate and solve crimes;

- consolidation of practical skills in fingerprinting, removal of plaster casts, case method, - situational approach to solving educational problems;

- competitive performance of practical tasks with further discussion of them, including the use of video footage taken during the lesson.

To sum up all the given information we can say that the use of a forensic polygon can be considered as an innovative and specific form of the process of teaching criminology at a university. This form of training has prospects for development in the form of a combination of physical models of crime scenes with virtual polygon blocks using modern information technologies. Only the virtual version of the polygon is not effective enough, because the student can not be in a real environment of investigative activities using existing equipment and tools for studying trace formation.

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PHILOSOPHICAL ISSUES OF THE FIGHT AGAINST CORRUPTION IN GOVERNMENT AND SOCIETY

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ANNOTATION

Corruption is an invisible disease of society, which has little impact on the socio-economic and political life of any country and is a flaw that hinders the development of an entire country. This article reveals the current aspects of the fight against corruption in the construction and management of the state and society. Legislative programs to combat corruption and the work being done in this area are also discussed in detail. The fact that the legislation of the Republic of Uzbekistan reflects and gradually develops measures to combat corruption is also based on the facts.

KEYWORDS: *corruption, state, and society, constitution, Islam, Anti-Corruption Law, Convention on Criminal Liability for Corruption.*

I. INTRODUCTION

In the history of human society, every state has tried to prevent various forms of moral threats and corruption in society in order to increase its power. The prevention of factors that negatively affect the development of such a state and society, the involvement of people in the social life on the basis of transparent and democratic reforms is an important philosophical process. To this end, the formation of ideological immunity in the minds of every citizen in society to prevent corruption is an urgent philosophical issue. The formation and development of the ideological immunity of citizens against corruption in society is a direct goal of a just, democratic state. A person working to build a just civil society that respects universal values, based on the national mentality of other nations and peoples living in Uzbekistan today, will have a philosophical outlook on foreign ideologies and views in society.

As noted by President Sh.M.Mirziyoev, "We will mobilize all our forces and capabilities to establish in our society the principle of "Law and justice - priority, punishment for a crime - inevitable". It should be noted that among the noteworthy work in this direction is the creation of an integrated system of combating corruption. "The adoption of the Law on Combating Corruption has made it possible to combine the efforts and capabilities of the state apparatus and civil society institutions in the fight against this dangerous scourge." [1] Legal reforms are being carried out in educational

institutions, mahallas, and organizations to combat negative vices in all spheres of society, especially to reduce corruption. This propaganda is directly aimed at strengthening the people's confidence in the ideology that exists in society, ensuring that the interests of man take precedence over all else and that the people live a clean and honest life.

The fight against corruption in public administration and society has been focused on the individual and his interests as a priority. The criteria of combating corruption are reflected in the national mentality, as a conscious being, intelligent, perceptive behavior, aesthetic ideals, behavior, lifestyle, behavior, ethics, manners, customs. Such an ideological and spiritual process, in turn, is the main criterion of a just system in the formation of each young generation as a person, regardless of nationality, race, lineage, religion, belief. Because a just and prosperous social life is a spiritual need not only for a nation or country but also for humanity. The main task of all of us is to encourage such an individual to connect with the destiny of the nation, the destiny of the nation with the destiny of mankind, and to bring up such young people. Speaking about this, Sh.M.Mirziyoev said, "Considering that more than half of the population of our country are young people, it becomes even clearer how serious this issue is.

At this point, I would like to briefly dwell on the tasks related to strengthening ideological immunity in the hearts and minds of our children. First of all, we



must never forget that each of us is responsible for protecting our youth from the various threats that come in the form of "mass culture", such as drug addiction, religious extremism, missionary work. In this regard, we rely on the national traditions formed over the centuries, the rich spiritual heritage of our ancestors. "[2] Therefore, in a country where a new national ideology has been formed and is stable, a new culture of youth based on openness and transparency, an attitude in line with universal intellectual values will be formed and developed. This process is an objective necessity arising from the content and essence of building a humane, just society without various corruption mechanisms.

II. Main part. If a state or society is limited to the development of a specific legal system in its territory and ignores the role and place of other peoples and nations in human civilization, then humanity, humanity, the future of humanity, independence, cooperation, Signs such as friendship, brotherhood, etc. are made through corruption, and as a result, the social system may face a crisis.

We must not forget that at a time when ideological conflicts, threats, and corruption chains are intensifying around the world, it is important to develop the law in our country to reduce the impact of this threat on public administration. We believe that the national ideology is one of the most important factors in the development of our country, and therefore we are fighting through the law to establish inter-ethnic relations in our society. All of us must use the examples of our high spiritual heritage wisely and enrich the solid base of our national ideology so that every person in the society can live in harmony and harmony.

The main task of the society is to live with the joy of the Motherland, its joys and sorrows, to be brave in the face of adversity, to protect the future of our country, the freedom of our people, to protect its security. we must fight and develop our non-discriminatory entrepreneurship on the basis of our national ideology. At the same time, when we say entrepreneurs, we do not mean "super-rich people who have amassed innumerable wealth through various dirty, corrupt ways, as in some neighboring countries, but millions of our entrepreneurs and businessmen who earn money through their honest work, intelligence, and energy." [3].

Today, the formation and development of legal consciousness and national mentality is an urgent issue in society to get rid of the negative flaws in the fight against corruption. We need to develop in citizens such ideas as national pride, a sense of pride, creativity, courage, love for the Fatherland, and confidence in the future, which fight against the scourge of corruption.

In the current process of combating corruption in Uzbekistan, the main focus is on educating the

younger generation and ensuring justice in this process. On the basis of local reforms, first of all, attention is paid to the fate of the Motherland, the future of the nation, building a free and prosperous homeland, educating a generation with modern knowledge and thinking, improving every region of the country and enriching the aesthetic world of a spiritually mature person. As we strive to create a corruption-free society in our country, we must all understand the essence of the decisions and laws that are being made, and make our young people aware of the need to contribute to these changes. Otherwise, we will lose our many achievements in society. "In the face of certain difficulties of the transition period, it may be formed and decided in the minds of citizens, especially in the younger generation, that the main way to achieve a high standard of living is through illegal activities. The pursuit of wealth in a devious way, if left unchecked by society and legal control, can lead people astray, especially young people who are just starting out in life. After all, what could be more tragic and devastating for society and the state than the moral depravity and apathy of the younger generation?" [4]. So, in any case, for the development of society and its development, it is important to be free from various ideological attacks, to create in the minds of young people an aesthetic education that is in harmony with the modern world.

In the ideology of any society, it is characterized by its rarest and most unique virtues, namely, kindness, patience, thoughtfulness, modesty, modesty, delicacy, sharpness, modesty, tolerance, diligence, humanity and other spiritual values. the intertwined ideas will be embodied. On this basis, it is possible to create some kind of national ideology in society on the basis of the interrelation of certain national ideas with each other as a system. The reason for this is that although the national idea is the basis of the national ideology, it consists of ideas as a specific system. For this national ideology to emerge, it must be composed of certain national ideas and be shaped as a system that influences the individual's worldview. But it is necessary to eliminate the elements of corruption, to express the aspirations of the people.

First, in the fight against corruption, it is necessary to strengthen public confidence in the national ideology, to develop in every citizen a sense of honesty and purity in connection with the history of our people. The national ideology of our ancestors as a philosophical manifestation in social life has played an important role in the practical and spiritual life of society. In this ideological process, it is important for our people to have faith in Allah and respect the beautiful scenery of nature. It calls people to live a just life in the way of Allah, to refrain from negative vices by calling them to purification. Only a certain system of great ideas can



fulfill the task of influencing the psyche of an individual through belief in Allah in social life, reaching the heart of each person, motivating them to great and unique goals. This situation can be likened to the fact that nature also shows people its beauty and influences them with colors arranged in a certain order, rather than with a single color so that people can enjoy it.

Second, Islam is recognized today as the most perfect religion in the world. This is what has emerged in society as a propagandist of our ideology. It promotes ideological views on the prevention of corruption in people. Religion, based on the goals and interests, needs and aspirations of the people, encourages man to work for goodness and creativity, to unite and mobilize great goals. It serves to be honest and humble on the basis of the system of thousands of ideas set forth in the Qur'an and Hadith. Therefore, in the propaganda of national ideology, religion emerges, first of all, as an ideological system, activating not only a system consisting of many national and non-national ideas but also a system of specific actions.

Third, national ideology plays the role of ideological prevention in the fight against corruption in society. At the same time, the national ideology will have such new potential that its influence on the people will increase several times. Because every national idea in it has a deeper and clearer understanding. It is based on the principles of the national idea.

In addition, secular knowledge, religious and divine values, enlightenment, philosophical observations about the perfect man, wisdom, freedom, justice, purity, honesty, courage, patriotism, humanity, sophistication, the essence of man, the meaning of human life, how to reduce corruption in our society, etc., wise ideas about national and universal moral and aesthetic views, fairy tales and legends reflected in the healthy lifestyle, thinking and worldview of our people, the lives of our national heroes, educating with ramona works, and so on is an important goal of our national ideology. In this regard, President Sh.M.Mirziyoev said, "In order to effectively combat corruption in our country, a special law has been adopted in this area. On this basis, the state program, which includes measures aimed at specific goals, is being consistently implemented. As a result of such work, in the first 9 months of this year, corruption-related crimes decreased by 33% compared to last year. We must accept such results as the first result of our long and lasting work in the fight against corruption, and we must work harder in this direction "[5].

As long as the national ideology serves to fight corruption in society, it can never function as a state ideology. It should be based only on the worldview of the people. Because in this regard, the Constitution of the Republic of Uzbekistan states that

"social life in the Republic of Uzbekistan develops on the basis of diversity of political institutions, ideologies, and opinions.

No ideology can be established as a state ideology. "[6] We all need to understand that these sentences are not the ideology of the state in which we fight corruption, but the ideology of our people aimed at shaping the honest and clean life of every person in our society. On the basis of national ideology, the past and present of our people should be united, their confidence and feel for the future should develop in the hearts of every person as a belief in prosperity and well-being.

The First President of the Republic of Uzbekistan I.Karimov also noted that the ideologies operating in Uzbekistan can never rise to the level of state ideology, "No ideology can rise to the level of state ideology. This constitutional provision imposes on us the task of creating an ideology of national independence. "[7]

The national ideology must embody the social environment of the individual, that is, the national and universal, past and present, religious and secular aspirations that reflect his existence. Such aspects of national ideology play an important role in freeing society from corruption. Speaking about the essence of the national ideology in the formation of this process, the famous philosopher S. Mamashokirov said, "When ideology is popularized in society, ideas emerge, self-regulate, a dynamic system of potentially developing a social environment and the conditions that move it - a living system." will be. "[8] On the basis of this view, the culture of the individual develops on the basis of the dialectic of nationalism and universality, creating the dynamics of the forces driving society through cultural and spiritual culture. In it, the needs, goals, and objectives of the people, material and spiritual heritage, theoretical and practical activities are integrated with the philosophical worldview embedded in the spirit of the people. In this way, it becomes a philosophical study that ideology is a necessary and universal process for the social environment of society.

F. Musaev acknowledges the importance of national ideology for the development of society, its renewal in the development of society, and its harmony with the spirit of the times: arises "[9]. Therefore, the national ideology in society should play a laxative role in the fight against corruption.

It is a pressing social issue in society to develop the aspirations of every citizen for the future on the basis of national ideology. A person achieves the goals he has set for himself only when he has a strong belief or belief in a certain field. Society must also be able to convince citizens of its ideas and views in order to build a prosperous future tomorrow. Today, we also need to nurture strong-willed citizens who can unite



all people on the path to prosperity and well-being of our country. Only then will we be able to think more broadly and more productively about the fight against corruption in the society we are talking about. In any society, "a person of faith, first of all, does useful work, does not harm others, does not lie. He always keeps his word, that is, when he decides to do something, he mobilizes all his strength and talent, he will do it, he will finish what he started. A believer knows very well what he is doing, why he is doing exactly that. Therefore, a true believer strives for knowledge, lives with a clear goal in mind, strives for perfection in all respects, acquaintance with the good, the desire for greatness becomes his life motto. A true believer wants to leave something for himself, his family, his children, his humanity. Therefore, faith is associated with such qualities as courage, bravery, devotion, will, conscience, determination, honesty, humanity, and patriotism." [10]

Our national ideology, which reflects a new worldview and the spirit of the times in society, is aimed at building a just state, embodying the spiritual image of the time. The process of social development nurtures people who have a unique and appropriate modern thinking for each period, and who bring about the development of society on the basis of a new worldview. In this process, the philosophical worldview, which raises the prospects of the people, serves to prevent corruption and paves the way for the formation of a national ideology that has a unique image in the path of the nation's destiny, prosperity, peace, and prosperity of the people. The social relations between the individual and the state, the approach to reality from the point of view of justice, the call of people to high spirituality should play a key role as its driving force. In such a situation, each of us felt the need for a society without corruption, aimed at the formation of pure feelings of the individual in society, serving humanity, raising the fate of our people to a higher level.

Today, the development of society and the pursuit of the well-being of the individual, which embodies the age-old aspirations of our people, has led to the emergence of a need for national ideology and its importance at the level of public policy. Emphasizing the urgency of this issue, the head of state said, "Today the times are changing rapidly. Life demands from all of us bold actions, active initiatives, fair and just attitude in all areas. Our people, who have seen a lot, are patient, hardworking, and noble, are waiting for the results of such important changes. He believes that the realization of the noble aspirations of our people, the courage to overcome various obstacles, bureaucracy, indifference, greed, corruption, and the formation of an uncompromising public opinion against them is

his profession, the meaning of his life. [11] Staff training is a topical issue of our national ideology.

III. Result and discussion. On the basis of this ideology, it is important to prioritize the interests of the individual in the civil society being built in Uzbekistan, to strengthen the system of "corruption-free sphere" in the activities of the state in the process of reforms. According to the laws of social development, "the individual's ideas and ideology and culture are crucial in society" [12]. In this activity, the society's need for high-spirited and fair citizens is growing. This, in turn, requires the strong formation of ideology in all spheres of social life, directing people, who are becoming the driving force of society, towards noble goals. The result is an ideology that reflects the way of life of the people, a common-sense person, or a set of specific views and opinions that nurture the younger generation. This ideology inspires people to great heights on the basis of moral ideals and always serves as a force for spiritual processes.

The national ideology of each society has not only expressed the ideas of a period but has been formed in the worldview of people for thousands of years and manifested itself in the material and spiritual heritage passed down from ancestors to generations. In particular, the national ideology of the Uzbek people, long before the creation of the Avesta, developed the worldview of individuals in public life. Because this ideology has called the people to the highest noble and creative deeds and called them to do all kinds of heroic deeds for the well-being of a high-spirited society, as well as for the well-being of the people. Today, Uzbekistan has joined the existing conventions on combating corruption in the world, and in cooperation with the community, the national ideology operates on the basis of our state.

Such a spiritual and social process directly contributes to the growth of human culture and thinking, leading to an increase in their knowledge and skills in morality, etiquette, history, art, literature, technology, cultural heritage, customs, religious beliefs. Such philosophical thinking, combined with humanism, democratic principles, and national ideology, prevents corruption, which is a negative evil, even in the face of tragedy and financial hardship, but serves to take a bold step towards a brighter future to build a just life. The task of combating corruption is objectively defined as a form of organizing their own society in parallel with the governance of existing states in the world. Some functions of the state, such as defense, national security, and the maintenance (protection) of public order, are traditional because the need to implement them has served as the main reason for the emergence of the state as a historical category. To



this day, they remain a hallmark of modern statehood.

One of these trends is corruption in the state apparatus. It is widely believed that large-scale, systemic corruption is a property of transition and underdeveloped countries. Indeed, countries with developed market economies and democratic institutions have lower levels of corruption, and they have lower or higher levels of internal corruption, which is a clear indication of the fragmentation of state power. The initiative of state and civil society institutions to combat corruption in public bodies should focus not only on the state and other institutions of civil society but also on civic activism of the population. In this regard, the head of state said that "it should be noted that concrete measures have been taken to prevent and combat corruption, which is a serious threat to the development of the state and society, the people's confidence injustice." [13] A distinctive feature of modern society is the alienation between the state and the citizens living in it, as well as the lack of real interaction between this society and the institutions of civil society.

However, no country today can consider itself "insured" against corruption. The world is globalizing and therefore corruption has become a global problem rather than a problem of individual countries, and this trend is increasingly recognized. Human development has led to a sharp increase in the risk of corruption for the whole world. But progress can also serve to create a system of protection against the adverse events and threats that cause it. The new reality forces us to reconsider the means by which society can counter the threat of corruption.

Corruption and its manifestations are on the rise around the world. Therefore, it is becoming more and more natural for any state to pursue a permanent anti-corruption policy. Only this strategy seems to be the only effective one in the current context. However, it is not opposed to the application of the rule of law by the state against corruption.

In particular, in conducting an anti-corruption policy, the state and society should see the weaknesses of the police, oversight, and judicial mechanisms and correct them, and most importantly, minimize corruption in the jurisdiction itself. If until now the function of combating crime (more broadly, the protection of law and order) included the fight against corruption, today's anti-corruption policy should become an independent task of the state. This is necessary both in countries with low levels of corruption and in countries in transit countries that have been implementing economic reforms after years of lack of private property rights and a competitive environment.

For clarity, we compare the function of the anti-corruption policy with the function of defense. The

latter is very expensive, but in the world you can trust a few states that are not part of the defense in their main functions. If you defend in the fight against corruption usually from this position, it may seem that only the inertia of traditions may require the preservation of this function, because the war of conquest has become the rule of international life. Traditionally, even small states are not in the habit of spending large sums of money to maintain and permanently arm their armies. The natural sense of self-preservation (states, more precisely, societies can also have feelings and instincts) encourages the state to always be ready for one of its primary means of reversing potential danger. The anti-corruption function should become a kind of natural state.

Based on the above considerations, we believe that it is expedient for the state to take permanent measures in the fight against corruption.

In our view, ongoing anti-corruption measures include:

- a) development of an anti-corruption program for a certain period, ie the creation of a document containing the main policy directions for a certain period;
- b) development of anti-corruption plans for a certain period, ie the creation of documents defining and compiling an anti-corruption program;
- c) monitoring the implementation of anti-corruption programs and plans, making the necessary amendments to them and creating a system for assessing the level of their implementation;
- d) radical reform of the activities of specialized anti-corruption bodies;
- d) the activities of regulatory authorities (parliamentary oversight and audit commissions, etc.);
- e) continuous monitoring of the state of corruption (from a territorial, sectoral and functional point of view), including through statistical, sociological and other methods;
- j) strengthening the system of anti-corruption education and training.

Apparently, this is a system of measures that is universal for different countries.

Hence, the directions of the state anti-corruption policy should include the following.

- introduction of amendments and additions to the laws;
- balanced control and balance between the main institutions of power, strengthening the system of mutual restraint;
- regulation of the system, structure, and functions of executive bodies;
- change the principles of control over the civil service (primarily civil) and the property status of government officials;
- creation of conditions for effective control over the distribution and expenditure of budget funds;



- strengthening the judiciary;
- Improving the law enforcement system and police (special services);
- coordination of anti-corruption policy, etc.

The directions of anti-corruption policy should be supplemented and changed as a result of an in-depth study of new knowledge about the nature of corruption at different levels - industrial, regional, functional, as well as the fight against corruption after a detailed study of the causes of corruption.

The features of Uzbekistan's anti-corruption policy can be seen in the following. The analysis shows that a number of international legal instruments aimed at ensuring the fight against the threat of corruption, which hinders the development of society in the world, including:

- International Code of Ethics for Public Officials (New York, December 12, 1996);
- Convention on Criminal Liability for Corruption (Strasbourg, January 27, 1999);
- Convention on Civil Liability for Corruption (Strasbourg, November 4, 1999) and the Additional Protocol to the Convention (Strasbourg, May 15, 2003);
- The United Nations Convention against Corruption (October 31, 2003) and others.

CONCLUSION

On the basis of international law and national legislation, organizational and legal mechanisms in the field of combating corruption have been created in our country.

First, the Budget Code, which is aimed at strengthening the legal framework for the prevention of corruption, "On crime prevention", "On social partnership", "On transparency of public administration", "On operational search activities", "On e-government" and the Law on Parliamentary Oversight.

Second, the adoption of the Law of the Republic of Uzbekistan "On Combating Corruption" on January 3, 2017 in order to effectively combat corruption - allowed to create an integrated system that combines the strength and capabilities of government agencies and civil society institutions in combating corruption.

According to Article 5 of this law, the main directions of state policy in the field of combating corruption are:

- raising the legal awareness and legal culture of the population, the formation of an intolerant attitude to corruption in society;
- implementation of measures to prevent corruption in all spheres of state and public life;
- Timely detection of corruption offenses, their elimination, elimination of their consequences, the

causes and conditions that allow them, ensuring the principle of inevitability of liability.

In general, the work done in Uzbekistan in recent years to combat corruption can be positively assessed. At the same time, the issue of recognizing that the main force is the state and creating a transparent environment in all areas is on the agenda. At the same time, we must not forget that we are responsible for the implementation of the decisions and decrees of the head of our state.

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‘HEALTH CARE-CONTAMINATIONS’-The Study of Epidemiology, Anticipation, Oversee and Observation

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ABSTRACT

Nosocomial contaminations or medical care related diseases happen in patients under clinical consideration. These diseases happen overall both in created and creating nations. Nosocomial conditions represent 7% in assembled and 10% in developing countries. As these diseases happen during the clinic remain, they cause delayed remain, inability, and monetary weight. Common contaminations often incorporate focal line-related circulation system diseases, catheter-related urinary plot diseases, careful site contaminations, and ventilator-related pneumonia. Nosocomial microorganisms include microscopic organisms, infections, and contagious parasites. As per WHO gauges, roughly 15% of all hospitalized patients experience these diseases' ill effects. During hospitalization, persistent microbes are presented through various sources of condition, medical services staff, and other tainted patients. The Transmission of these contaminations ought to be confined for counteraction. Clinic squanders fill in as expected wellspring of microorganisms, and about 20%–25% of emergency clinic blow is named perilous. Nosocomial diseases can be constrained by rehearsing contamination control programs, keep an eye on antimicrobial use, and its opposition, embracing anti-toxin control strategy. A proficient reconnaissance framework can play its part at the public and global level. Endeavors are required by all partners to forestall and control nosocomial contaminations.

KEYWORDS -nosocomial, infections, disease

INTRODUCTION

'Nosocomial' or 'medical care related contaminations' (HCAI) appear in a patient under clinical consideration in the clinic or other medical care office, which was missing at the hour of confirmation. These diseases can happen during medical care conveyance for different sicknesses and even after the patients' release. Also, they involve word related contaminations among the clinical staff[1]. For example, intrusive gadgets and ventilators utilized in current medical services are related to these infections[2]. Of each hundred hospitalized patients, seven in created and ten in developing nations can procure one of the medical services associated with

diseases [3]. Populaces in question are patients in Intensive Care Units (ICUs), consume units, going through organs relocate, and youngsters. As per the Extended Prevalence of Infection in Intensive Care (EPIC II) study, the extent of contaminated patients inside the ICU is frequently as great as 51%[4]. Given broad examinations in the USA also, Europe shows that HCAI occurrence thickness ran from 13.0 to 20.3 scenes per thousand patient-days[5]. With expanding contaminations, there is an expansion in delayed medical clinics, prolonged haul inability, expanded antimicrobial opposition, increment in unsettling financial influence, and extended death rate. Save data exists on nosocomial diseases' weight on account of



inadequately created observation frameworks and inexistent control strategies. For example, while getting care for different illnesses, numerous patients most likely get respiratory infections, and it gets irksome to spot the predominance of any nosocomial infection in continuation of an essential consideration facility[5]. These diseases get saw as it were when they become a plague, yet there is no organization or a nation that may profess to have settled this endemic problem[6]. We have examined the control techniques of nosocomial diseases in our past study[7]. In this audit article, a brief depiction of the appropriation of these diseases over the globe, developing causes, straightforward control strategies; however, more spotlight on current reconnaissance will be examined.

2. INFECTIONS TYPE

The most common diseases incorporate focal line-related circulatory system contaminations, catheter-related urinary lot diseases, careful site contaminations, and ventilator-related pneumonia. A brief detail of these is given underneath:

2.1 CENTRAL LINE-RELATED BLOODSTREAM INFECTIONS (CLABSI)

CLABSIs are destructive nosocomial diseases with the passing frequency pace of 12%-25%[8]. Catheters are put in the focal line to give liquid and prescriptions; however, delayed use can cause genuine circulatory system diseases in traded off wellbeing and increment in care cost[9]. Even though there is a decline of 46% in CLABSI from 2008-2013 in US medical clinics, an expected 30,100 CLABSI still happens in ICU and intense offices wards in the US each year[10].

2.2 CATHETER-RELATED URINARY BUNDLE DEFILEMENTS (CAUTI)

CAUTI is the most regular sort of nosocomial disease globally[11]. As indicated by intense consideration clinic details in 2011, UTIs represent over 12% of announced infections[12]. CAUTIs are brought about by endogenous local microflora of the patients. Catheters set inside fills in as a course for passage of microscopic organisms while the defective waste from catheter holds some volume of pee in the bladder giving steadiness to bacterial residence[11]. CAUTI can create difficulties, such as orchitis, epididymitis, prostatitis in guys, and pyelonephritis, cystitis, and meningitis in all patients[12].

2.3. CAUTIOUS SITE INFECTIONS (SSI)

SSIs are nosocomial infections that fall in 2-5% of patients exposed to the medical procedure. These are the second most regular sort of nosocomial

contaminations fundamentally brought about by *Staphylococcus aureus* bringing about delayed hospitalization and danger of death[13]. The microbes causing SSI emerge from the endogenous microflora of the patient. The rate might be as high as 20%, relying on the methodology and observation models used[14].

2.4. VENTILATOR ASSOCIATED PNEUMONIA (VAP)

VAP is nosocomial pneumonia found in 9-27% of patients on a precisely helped ventilator. It generally happens inside 48 hrs after tracheal intubation[15]. 86% of nosocomial pneumonia is related to ventilation[16]. Fever, leucopenia, and bronchial sounds are essential manifestations of VAP[17].

3. NOSOCOMIAL MICROORGANISMS

Microorganisms answerable for nosocomial contaminations are microbes, infections, and contagious parasites. These microorganisms shift contingent on various patient populaces, clinical offices, and even distinction in the condition in which the consideration is given.

3.1. Microorganisms are the most widely recognized microbes liable for nosocomial contamination. Some have a place with common verdure of the patient and cause disease just when the patient's insusceptible arrangement gets inclined to contaminations. *Acinetobacter* is the class of pathogenic microorganisms liable for contaminations happening in ICUs. It is implanted in soil and water and records for 80% of detailed infections[18]. *Bacteroides fragilis* is a commensal microscopic organism found in the intestinal parcel and colon. It causes diseases when joined with other bacteria[19]. *Clostridium difficile* causes the colon's aggravation, promoting antimicrobial related the runs and colitis, fundamentally because of the end of beneficial microscopic organisms with pathogenic. *C. difficile* is communicated from a tainted patient to others through medical services staff utilizing inappropriate purified hands[19]. Enterobacteriaceae (carbapenem-opposition) cause diseases if they travel to other body parts from the gut, where it is typically found. Enterobacteriaceae comprise *Klebsiella* species and *Escherichia coli*. Their high opposition towards carbapenem causes the guard against them more difficult[20]. Methicillin-safe *Staphylococcus aureus* (MRSA) communicates through direct contact, open injuries, and sullied hands. It causes sepsis, pneumonia, and SSI by going from organs o the circulatory system. It is profoundly safe towards anti-toxins called beta-lactams[20].



3.2. Infections Other than microscopic organisms, conditions are likewise a significant reason for nosocomial disease. Regular checking uncovered that 5% of all the nosocomial diseases result from viruses[21]. They can be sent through hand-mouth, respiratory course, and fecal-oral route[22]. Hepatitis is the interminable illness brought about by infections. Medical services conveyance can communicate hepatitis infections to the two patients and laborers. Hepatitis B and C are ordinarily transmitted through unsafe infusion practices[20]. Other diseases incorporate flu, HIV, rotavirus, and herpes simplex virus[22].

3.3. Infectious parasites go about as entrepreneurial microorganisms causing nosocomial diseases in resistant traded off people. *Aspergillus* spp. It can cause diseases through ecological pollution. *Candida albicans*, *Cryptococcus neoformans* are additionally liable for contamination during medical clinic stay[22]. *Candida* diseases emerge from patient's endogenous microflora, while *Aspergillus* contaminations are brought about by inward breath of parasitic spores from debased air during the development or redesign of medical services facility[23].

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4. The study of disease transmission of nosocomial contamination Nosocomial disease influences a tremendous number of patients worldwide, raising death rate and monetary misfortunes fundamentally as per gauge announced of WHO, around 15% of all hospitalized patients experience the ill effects of these infections[23]. These contaminations are liable for 4%–56% of all demise causes in children, with a frequency pace of 75% in South-East Asia and Sub-Saharan Africa[1]. The occurrence is sufficiently high in high salary nations, for example, somewhere in the range of 3.5% and 12% though it differs somewhere in the field of 5.7% and 19.1% in the center and low pay nations. The recurrence of in general infections in low salary countries is multiple times higher than in high salary nations, while this frequency is 3–20 times higher in neonates[24].

5. Determinants Danger factors deciding nosocomial contaminations rely on the nature in which care is conveyed, the patient's vulnerability and state, and the absence of familiarity with such winning contaminations among staff and wellbeing care providers.

5.1. Condition Poor sterile conditions and deficient garbage removal from medical care settings.

5.2. Vulnerability Immunosuppression in the patients delayed remains in the emergency unit, drawn-out utilization of anti-infection agents.

5.3. Unawareness Improper utilization of infusion procedures, helpless information on essential disease control measures, unseemly utilization of intrusive gadgets (catheters), and absence of control policies[25]. In low pay nations, these danger factors are related to destitution, scarcity of money related help, understaffed medical care settings, and lacking flexibly of pieces of equipment [5].

6. Stores and transmission 6.1. Microflora of Microscopic patient organisms having a place with the patient's endogenous greenery can cause diseases if they are moved to tissue wound or careful site. Gram-negative microscopic organisms in the stomach related lot cause SSI after stomach medical procedure.

6.2. Patient and staff Transmission of microbes during the treatment through direct contact with the patients (hands, salivation, other body liquids, etc.) and by the team through direct contact or other natural sources (water, food, other body liquids).

6.3. Condition Microbes living in the medical care condition, such as water, food, and gear types, can be a wellspring of Transmission. Transmission to other patients makes one more supply for uninfected patients [22].

7. Avoidance of nosocomial contamination Being an essential reason for disease and passing, nosocomial contamination should be kept from the gauge so that their spread can be controlled.

7.1. Transmission from environment unhygienic conditions fills in as the best hotspot for the pathogenic living being to win. Air, water, and food can get defiled and communicated to the patients under medical care conveyance. There must be arrangements to guarantee cleaning operators' cleaning and utilization on dividers, floor, windows, beds, showers, latrines, and other clinical gadgets. Legitimate ventilated and new sifted air can dispense with airborne bacterial pollution. Regular checks of channels and ventilation frameworks of general wards, working theaters, and ICUs must be kept up and reported. Diseases credited to water are because of the disappointment of medical care foundations to satisfy the guideline rules.



Microbiological monitoring methods ought to be utilized for water examination. Contaminated patients must be given separate showers. Inappropriate food taking care of may cause foodborne diseases. The territory ought to be cleaned, and the nature of food should fulfill guideline criteria[22].

7.2. Transmission from staff Contaminations can be moved from medical services staff. Medical services experts must take part in disease control. Individual cleanliness is essential for everybody, so staff ought to look after it. Hand disinfecting is required with legitimate hand disinfectants after being in contact with tainted patients. Safe infusion rehearses and sanitized types of gear ought to be utilized. Utilization of veils, gloves, head covers, or a legitimate uniform is necessary for medical care delivery[22]. 7.3. Emergency clinic squander management

7.3. Medical clinic squanders the executives Squander from clinics can act as an expected supply for microbes that need appropriate care. 10-25% of the waste created by the medical care office is named as risky. Irresistible medical services waste ought to be put away in the territory with confined methodology. Squander containing the high substance of weighty metals and waste from medical procedures, tainted people, defiled with blood and sputum, and demonstrative laboratories must be arranged off independently. Medical services staff, what's more, cleaners should be educated about the dangers of waste and its proper management[22].

8. Control of nosocomial contaminations Despite noteworthy endeavors to forestall nosocomial diseases, more work is needed to control these diseases. In a day, one out of 25 emergency clinic patients can gain at any rate a solitary sort of nosocomial infection[26]. 8.1. Contamination control programs Healthcare Institutes should devise control programs against these diseases. Organization, laborers, and people conceded or visiting emergency clinics must consider such projects to assume their part in avoiding diseases. An effective contamination control program is appeared in Figure 1[22].

9. Antimicrobial use and opposition Microorganisms are the creatures too little to even think about being seen with the eyes, yet they are found wherever on earth. Antimicrobial drugs are utilized against microorganisms that are pathogenic towards living life forms. Antimicrobial obstruction happens when the organisms build up the capacity to oppose medications'

impacts; they are not slaughtered, and their development doesn't stop.

9.1. Proper antimicrobial use Antimicrobials are significantly used to fix sickness. Antimicrobial use ought to legitimize the best possible clinical conclusion or disease-causing microorganism. The Centers for Disease Control and Prevention (CDC) gauges that every year around 100 million courses of anti-infection agents are endorsed by office-based doctors, while roughly half of those are unnecessary[27].

10. Observation of nosocomial contamination, even though the contamination anticipation and control program is to kill nosocomial diseases; however, epidemiological statements for the exhibit of execution improvement are needed to achieve the threshold. The significant observation strategies incorporate information assortment from different wellsprings of data via prepared information gatherers; data should include managerial information, segment hazard factors, patients' history, analytic tests, and data approval. Following the information extraction, the examination of the gathered data ought to be done, which incorporates the portrayal of determinants, disseminating diseases, and correlation of occurrence rates. After investigation, critics and reports ought to be dispersed by contamination control councils, the board, and research centers keeping people's classification. The assessment of the validity of observation frameworks is required for effective executions of mediations and its coherence. Finally, the endeavor of information at customary stretches for the upkeep of observation frameworks' productivity ought to be made compulsory[22].

CONCLUSIONS

Bottom of Form With the expanded weight of nosocomial diseases and antimicrobial opposition, it has gotten hard for medical services organizations and contamination control panels to arrive at the end of the spans' objective. Notwithstanding, by rehearsing sound and reliable ways for care conveyance planned by contamination control councils, controlling the Transmission of these contaminations utilizing suitable strategies for antimicrobial use, the obstruction in rising microbes against antimicrobials can be diminished without any problem. An effective observation strategy guided by WHO can help medical care foundations to devise contamination control programs. Legitimate medical clinic staff preparation for biosafety, appropriate squander the board and medical services



changes, and unveiling general mindful of these endemic contaminations can likewise help decrease nosocomial diseases.

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POSITION OF “RESPONSE POEM” IN THE LITERARY ENVIRONMENT OF MAVERANNAHR

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ABSTRACT

During the reign of Sahibkiran Amir Temur, a strong literary atmosphere existed in Maverannahr, which influenced not only its development here, but also all Persian-speaking regions. This literary environment that arose after the Mongol invasion, despite the difficult period, not only did not die out, but also achieved high results. The article deals with the place of “reciprocal poetry” of the figures of this literary environment, which had a great influence on the literature of that period, causing the discovery of new aspects of poetry in the future.

KEYWORDS: *literary environment, reciprocal poetry, plaintiff poets, exaggeration, deevan, gazelle, mukhammas, creative competition.*

RELEVANCE OF THE TOPIC

At the end of the 14th and the beginning of the 15th centuries, especially during the last periods of the reign of Sahibkiran Amir Temur and the Timurids, studying the progress of the development of the Samarkand literary environment is an actual issue in our literary research. Based on this, it is important to determine the characteristics of the poetry of that period, the influence of the “response poem” of the poets of the time to each other. At the same time, this topic has both theoretical and practical significance in a comparative study of the history of classical literature of this period and the process of evolutionary formation at a later stage.

PURPOSE OF RESEARCH

Studying and researching the literary environment of Maverannahr, especially its then capital, Samarkand during the reign of Amir Temur and the Timurids, in particular Khalil Sultan.

MATERIALS AND RESEARCH METHODS

The source of the subject was scientific and critical works published in Europe, Russia, Iran, Uzbekistan, Tajikistan, as well as an anthology and works of poets of that period, such as “Tazkirat Ush-Shuaro”, “Majalis un-Nafais”, “Javahir ul-Asror” , “Haft iqlim”, “History of

literature in Iran”, as well as scientific studies of famous writers like K. H. Eté, Z. Safo, V.V. Bartold, I.S. Braginsky, S. Aini, H. Mirzazade, B. Valikhodjaev, S.Sadiev. The work used the experience of researchers in Europe, East-Western countries, including Russia, Iran, Uzbekistan and advanced methods, including the analysis method, comparative method, historical method.

THE SCIENTIFIC NOVELTY OF THE STUDY

The study highlights the issues and features of the Samarkand literary environment of the late XIV-early XV centuries and famous representatives, the so-called “response poem.”

INTRODUCTION

Since this topic has not yet been studied, we need to identify well-known representatives of this literary environment and find out their influence on other literary environments.

One of the famous figures of this literary environment is the great Tajik poet and writer of gazelles Kamoliddin Masud Khodjandiy (born 1318-1323), Abdulmalik Isomiy Samarkandiy (born 1311), Khoja Ismatulla Bukhariy (born 1365-1375) Bahauddin Barandak Khojandiy 1393) was born in 1356), Khoja Muhammad bin Yahya Sebak Fattahi, Tahir Abevardi, Mujazi Samarkandiy and others.



Poetry occupied a special place in Maverannahr during the reign of Temur, although palace literature was not yet formed, but it continued to develop among the working people and its representatives created insightful works. In such conditions, the creative competition between poets, naturally, intensified, and the response poem became a literary phenomenon, and we can say, had a great influence on the literary process. Each poet tried to respond to poetry by famous poets in order to show his skill in poetry or to equate himself with them. To show their strength from others, to show the degree of their greatness, by writing a response, the plaintiff poets seemed to compete with each other and tried their strength in the form: "Who is stronger, you or me?" This process turned into fierce rivalry and territory, as well as the duration of this competition was not limited. Indeed, back in the 14th century, Hafiz Shirazi tried to write better answers on poems by poets like Saadiy, Khoja Kirmani, Salman Sawaji and others.

The well-known Iranian researcher Ehsan Yarshatir in his work (3, 10) comprehensively analyzed the literature of this period and, among other features, paid special attention to the course of development of writing the response between poets. It is known that during this period two main literary centers acted actively - Samarkand and Herat, with the poets Maverannahr prevailing in Samarkand, and the poets of Khorasan dominating in Herat. Analyzing the responsiveness of poets, he proved that in the first half of the 15th century a strong literary atmosphere existed in Khorasan and its center Herat. It should be noted that this was not a comprehensive study of the literary environment of Maverannahr, because E. Yarshatir did not have enough material to study this literary environment. Even he did not have a deevan in his hands - a collection of poems by the most famous poet of that literary environment Khoja Ismat.

But in the course of our research in this regard, it became known that also in the literary environment of Maverannahr, a wide circle of poets' contests and impromptu poetry was widely spread. As a result, poets tried to convey even more original content and images in their poems in order to show their superiority over others. From the analysis of the works of the most famous poets of the literary environment of Maverannahr, both positive and negative sides are revealed to this process. As a positive side of this process can be called the desire of poets to achieve newer and not-used content and images. As for the negative side of the issue, the feeling of egoism among some forerunner poets intensified and they turned the process of responsiveness into a heated polemic with regard to their rivals. We can say that they

expressed reproaches and insults to other, even to great figures of literature. For example, such reproaches existed between the poets Bisotiy Samarkandiy and Kamal Khojandiy or Khoja Ismat and Barandak (5, 504).

To clarify this issue, we examined the existing deevans - collections of poems of poets of that period in Maverannahr. For example, when analyzing Ismat Bukhari's poems, it turned out that he was mostly imitated by the gazelles of Amir Khusrav Dehlawi, Hassan Dehlawi, Hafiz Shirazi and Salman Sawaji (4).

CONCLUSION AND DISCUSSION

Especially in Samarkand, one might say, a tradition of response poems on gazelles of Kamal Khojandiy turned into a tradition. Most of these examples were collected in the book "Muqaddimai Kamolshinosi" ("The title to the study of Kamal") (5, 706). It is well known that Kamal wrote a response to the poems of great poets like Saadiy and Hafiz, and even in his gazelles he exalted himself above them. For example, Hafiz in one of his gazelles says:

ستاره ای بدرخشیدو ماه مجلس شد

دل رمیده مارا انیس و مونس شد (9, 217)

(One star sparkled and like the moon illuminated our circle, she became the confidant of my distant heart).

Kamal in his response writes:

نشد بطرز غزل همعنان ما حافظ

اگرچه در صف سلطان اب الفوارس شد (8, 440).

(In gazelle writing, Hafiz could not equal us; Although he occupied a place next to Abulfavoris (ruler at that time).

But as Iranian researcher Partav Nodiri said: "Of course, Kamal with his enlightening pathos showed his greatest emotion here more" (5, 476). In fact, the emotional attitude of Sheikh Kamal is felt in this matter. "The number of Kamal gazelles written in imitation of Hafiz reaches fifty" (5, 476), writes afghan literary critic Vasif Bokhtari. Conclusion of Partav Nodiri, who wrote with reference to the work of Amin Ahmed Razi "Haft iqlim," is close to the truth (5, 440). He wrote that the connoisseurs (arifs) who participated in their poetic conversation said that Kamal's conversation was better than Hafiz's, and Hafiz's poems were better than his, "that is, they preferred not Hafiz's conversation, but his poetry. These researchers actually consider Kamal as a poet who influenced the poetry of Hafiz. In particular, the author of Haft iqlim writes: "They say that Khoja Hafiz secretly paid great attention to Sheikh Kamal



and constantly sent a letter from Shiraz to send him Kamal's poems" (5, 36). And Kamal himself considered himself better than all poets, and only showed special respect to Jalaluddin Rumi, Attar and Nizami, and counted out equally with himself. Including, in his gazelle writes:
یار چون بشنید گفتار کمال

گفت مولانایی و عطار ما (8, 65).

(As soon as the beloved heard the words of Kamal, she said: "You are our Mevlana and Attor")

In his poems, Kamal ruthlessly criticizes such poets as Assara Tabrezi, Suzani Samarkandi, Kamal Ismail, Zahir Faryabi, Anvari, and in the poetic arena does not consider them to be equal.

Kamal's gazelles were responded by the poets of that period, Khoja Ismat and Bisoti to Khayali Bukhari and other future poets of Maverannahr and Khorasan. Even Turkish-speaking poets like Lutfiy, Sakkokiy, and later Mir Alisher Navoi himself paid attention to his poetry. Since Kamal speaks on one gazelle:
تا رخ نبوشی کی شود از دیده اشک ما روان،

پنهان نگشته آفتاب اختر نمی آید برون (6, 274).

(Until you cover your face, our tears will not leak; because the stars do not sparkle until the sun covers your face)

And Navai, exerting his unique talent, writes in response to:

عارضین یاقچ کوزیمدین ساچیلور هر لحظه باش

بوyle کیم پیدا بولور یولدوز نهان بولغچ قویاش

(Since you cover your face, my tears flow all the time; Because after sunset, will sparkle the stars)

Of the prominent poets of that period, Bisotiy Samarkandi wrote gazelles of his teacher Khoja Ismat, as well as Salman, Khoja Kirmani, and a characteristic feature of his works was that he retained his own style without being influenced by them.

Among the poets of this literary environment, Khayali Bukhari wrote more responses in the gazelles of Saadi and Amir Khusrav, was interested in the poetry of Hafiz, Kamal, Khoja Ismat and Kotibi, and to some extent even imitated them. Pay attention to the Kamal beyt:

د لیش جان عاشق هوس میکن

شکر آرزوی مگس میکند. (8, 481).

(The soul of a lover envies his lips, like a fly that reaches for sugar)

In response to this, Khayali, without losing the features of his style, will skillfully support the works of Kamal's images:

کسی کو لیش را هوس میکند

کی اندیشه از روی کس میکند (6, 161)

(The one who dreams of his lips will never be afraid of anyone's face)

Although it seems that Khayali's responses have become similar to imitation, he managed to demonstrate the specificity of his skill in fiction. In particular, he writes a remarkable review of the famous Bisoti gazelle, which says:

دل شیشه و چشمان تو هر گوشه برندش

مستند مبادا که بناگه شکنندش.

(My heart is like a bottle, and your eyes are pulled in different directions; They are empty, it did not happen that they broke it)

Khayali, again using his remarkable style, will worthily answer this gazelle:

چشمت ار شیشه دلها شکند باکی نیست

کی تواند که چنین مست چینهها نکند (6, 162)

(It does not matter if your eyes break hearts like a bottle; Because, unless such a drunk can do without such an act)

Therefore, his contemporaries also praised this response of Khayali and Davlatshokh Samarkandiy called him "a singer of smooth, clean and blissful poems" (2, 375). And also the great representative of Sufism of that time, Sheikh Bahoi wrote the famous "mukhammas" - a five-letter to one of the Khayali gazelles, which begins with the beyts:

ای تیر غمت را دل عشاق نشانه

جمعی به تو مشغول و تو غایب ز میانه. (6, 164)

(Oh, the heart of lovers is the target for the arrow of your sorrow; People are busy with you, and you are not among them)

CONCLUSIONS

The following conclusions can be drawn from these discussions:

1. Sources, including "Javahir ul-Asror" of Ozari, testify that during the reign of Amir Timur and Khalil Sultan in Maverannahr, word mastery, in particular, the creation of gazelles, intensified, and representatives of this literary environment competed with other strong literary circles.
2. In the literary environment of Maverannahr, in connection with the



intensification of rivalry between advanced representatives, poets tried to achieve equality with the great masters of the word, and even in some cases claimed to increase their position.

3. As a result of increased competition between poets for excellence, they took the first steps to search for the creation of new contents and images in gazelle-writing, and this action gave effect in the manifestation of new poetic styles.

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IMPACT OF DEMONETIZATION AND GST ON RETAILING BUSINESS

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ABSTRACT

Indian economy is growing in a faster way next to china, until a pandemic situation. A sustainable economic growth seen in pre-demonetisation and GST. In fact the growth of economy encompasses all the sectors especially industries and agriculture, which are root causes for the sustainable growth. Demonetization and Goods and Service Tax (GST) are two measures taken up by the Indian government in a short span of time aimed to tackle the issues and to resolve the emerging issues, which subdue the Indian economy. The consequence of Demonetization and GST becomes a challenge for so-called targeted aim along with unforeseen cross waves. GST requires the companies to not just be tax complaint but also readjust their structure and supply chain networks. On the other hand, demonetization makes the people to go for cashless payments to some extent.

KEYWORDS: *Demonetization, GST, Retailers, Digitalization.*

INTRODUCTION

The government has implemented a major change in the economic environment by demonetizing the high value currency note of Rs.500 and Rs.1000 denominations. These ceased to be legal tender from the midnight of 8th November 2016. The objectives of demonetization policy are to make India a corruption free state, to curb black money, to control inflation, to stop terror financing, to make the people pay income tax and to make a cashless society and create Digital India. But the outcomes are not so upright as it is designed for. The demonetization policy remains a debatable one in the radar of economists.

GST is an Indirect Tax which has replaced many Indirect Taxes in India. The Goods and Service Tax Act was passed in the Parliament on 29th March 2017. The Act came into effect on 1st July 2017. More than 150 nations have implemented Goods and Service Tax (GST) so far however many of them encounter with some issues. Goods and Service Tax (GST) is an indirect tax (or consumption tax) imposed in India on the supply of goods and services. The tax replaced existing multiple flowing taxes levied by the central and state governments. Good

and Services are divided into five different tax slabs for collection of tax - 0%, 5%, 12%, 18% and 28%. However, petroleum products, alcoholic drinks, and electricity are not come under GST and instead are taxed separately by the individual state governments, as per the previous tax regime. This leads to raise the question by the experts on the so-called motto of one-tax formula. The study aims to analyse the impact of demonetization and GST on the retailing business, and the traders' perception on the implementation of demonetization and GST, to assess the extent to which it makes them to change in their business arena in Thoothukudi city.

REVIEW OF LITERATURE

Pradnyasurwade(2017) studied the effect of demonetization on every day income, people's expectations concerning currency etc. The study discloses problems faced by common people with the use of online banking which are further analysed and solution to this problem are suggested to some extent, in turn to move towards cashless banking. The vegetable and fruit marketers are mostly affected by this decision, because they are illiterates and don't have a knowledge in using swipe machine and



Paytm. Again, almost all the customers come to them with cash only. More than 90% of transactions are still based on cash, so it is very difficult to have success in cashless economy. Dr.S.Preethi and V.M.Sangeetha (2017) in their article entitled, "Impact of demonetization on Indian economy", revealed the various sectors are affected where demand is usually backed by cash. In automobile industry Clampdown on cash transactions and temporary cash crunch hurt purchases of two wheelers, where the percentage of cash transactions has been high. In case of passenger vehicles, the seasonal slowdown seen during November and December months could get more pronounced as consumers delay purchases due to temporary liquidity crunch and expectations of rate cuts. Thus, slackness in the economy on account of demonetization could have a negative impact on the commercial vehicle volumes. Dr. Yogesh Kailashchandra Agrawal (2017) "Goods and Services Tax and Its Impact on Indian Economy" The Indian textile industry provides employment to a large number of skilled and unskilled workers in the country. It contributes about 10% of the total annual export, and this value is likely to increase under GST. GST would affect the cotton value chain of the textile industry which is chosen by most small medium enterprises as it currently attracts zero central excise duty (under optional route). The FMCG sector could see significant savings in logistics and distribution costs as the GST will eliminate the need for multiple sales depots. Dr.V.Sornaganesh and G.Sudha (2019) observed that most of the respondents used cash for their payment before demonetization but after demonetization it seems a slight change coupled with some respondents are not aware with digital cash.

RESULTS AND DISCUSSIONS

Effect of Demonetization on the Business

The dealers are classified as small, whose turnover does not exceed Rs.30,000, medium dealers, whose turnover falls in Rs.30,000-60,000, and large dealers, whose turnover exceeds Rs.60,000. Out of 40 retailers, 18 per cent of respondents deal small size business. Among these, 50 per cent of the respondents felt their business did not affected much by the demonetization. But 27.8 per cent of the respondents revealed their business were affected by the demonetization. Another 22.2 per cent of the respondents' business was not affected by the demonetization. Among the 13 medium size businesses, 61.5 per cent of the dealers stated their business was bitterly affected by the demonetization. The trade in the market was affected and the retail sales witnessed a severe dip Kandpal, et al (2019). About 30.8 per cent of the dealers found affecting their business much because of demonetization. within a short span of time 7.7 per cent respondents

business not affected by the demonetization 30.8 per cent respondents not affected by the demonetization. There are nine dealers do their business at large level, out of them, 44.4 per cent of their businesses were affected much by the demonetization. Again one-third of the respondents said their business was not affected by the demonetization. Another 22.2 per cent business was not much affected by the demonetization (Table-1 See Appendix). The analysis found medium and large dealers are mostly affected their businesses because of demonetization. Interestingly small dealers are not much affected.

The dealers in various businesses namely, Electrical, Textile and Automobile reported that their businesses were affected at 10 per cent level in sales constituting more than 44 per cent due to demonetization. But kirana stores were affected their sales in the range of 10-20 per cent which constitutes 36.4 per cent. Since the later meant for fulfilling the routine needs of people, this business experienced a higher-level distress (Table-2 See Appendix).

Dealers Perception on Demonetization

The act of demonetization pushes the dealers to adopt digitalization, as it is ranked first. Demonetization adversely affected the dealer's business, which is ranked second. Its implementation found not fair as it is ranked third. Demonetization does not curb the black money as it is ranked fourth. The statement of demonetization never amounts to improve the status of common people so it is ranked last (Table-3 See Appendix). So, the demonetization urges the dealers to adopt digitalization to some extent.

The dealers are classified as small, whose turnover does not exceed Rs.30,000, medium dealers, whose turnover falls in Rs.30,000-60,000, and large dealers, whose turnover exceeds Rs.60,000. Out of 40 retailers, 18 respondents are the small dealers, among them 38.9 per cent agreed the demonetization pushes them into digitalization. It must be noted at the other end the usage of services like debit card, net banking, and mobile banking are mainly based on the income level of the respondents i.e. those whose income increases are largely use these services except core banking service Dr.G.Paulraj and D.Ugesh (2013). One-third of them strongly agreed with the statement. Another 27.8 per cent of the dealers revealed a neutral opinion about the statement. Out 13 medium dealers, 38.5 per cent of them strongly agreed that demonetization urges them into digitalization. The same per cent of other dealers expressed their opinion neutral to the statement. But 15.4 per cent of the respondents disagreed it. Again 7.7 per cent of the respondents agreed that demonetization pushes them into digitalization. Out of 9 large dealers, 44.4 per cent of them agreed that the demonetization pushes into digitalization. One-third of them strongly agreed for this statement.



While 11.1 per cent of them opined for this at neutral and the same level revealed strongly against this statement (Table-4 See Appendix). Conclusion is drawn from the analysis that demonetization urges the small and large dealers into digitalization, and this is very strong in case of medium dealers and also placed their opinion neutrally.

Impact of GST on Business

The small dealers were not affected much in their business when implementing GST. Similarly, the medium and large level dealers are mostly affected their business because of GST to the extent of 46.2 per cent and 55.6 per cent respectively. It is also noted that a meagre number of small and medium dealers expressed their businesses were not affected due to implementation of GST, but no large dealers fall in line with (Table-5 See Appendix).

The implementation of GST roots the dealers to upsurge the various legal formalities, as it is ranked first. Implementation of GST results in the product and services more expensive which is ranked second. Thirdly, GST affects the small businesses very badly. There is a lack of awareness amongst the small business owners regarding the GST and its rules, Vineet Chouhan (2017). Dealers feel that sufficient time was not given to adopt the GST as it is ranked fourth and then GST confuses the retailers which is ranked fifth. Sixthly, GST curtails the tax evasion. The statement of preparation of GST filling is easy is ranked seventh and finally GST promotes to increase the sales (Table-6 See Appendix). Analysis clearly indicated that the dealers are faced a legal formality issues to cope with adoption of GST.

Size of Business and GST Legal Formalities

Out of 18 small dealers, 44.4 per cent of them strongly agreed that GST increases the various legal formalities to adoption. The level of awareness among the small traders was moderate and they give a high negative impact towards GST. This eventually causes the majority of them did not accept the implementation of GST, Sakthi Devi K. R. (2017). Another 38.9 per cent of them agreed the statement of increased legal formalities. However, 16.7 per cent of them are at neutral opinion about the statement. Among the 13 medium size businesses, 53.8 per cent of them agreed that adoption of GST leads to the

various legal formalities. Another 38.5 per cent of them stated strongly respond to the statement. Only 7.7 are in neutral opinion about the statement. Out of nine large size businesses, more than one-half of them agreed that adoption of GST leads to the various legal formalities. That too one-third of them strongly agreed with the statement. Only 11.1 per cent of them are in neutral opinion about this statement (Table-7 See Appendix). Thus, it is concluded that almost all the dealers invariably their size of business faced the issue of legal formalities in adoption of GST.

CONCLUSION

The mantra of 'Digital India' is an emblematic program of the government that aims to transform India into a digital society and a knowledge economy. Though the intension of a dual actions is upright, but their implementation diverges from the goals of a corruption free state, to curb black money, to stop terror financing, and to make a cashless society, but they go in futile. The demonetization policy remains a debatable one in the radar of economists as they claim it does not serve purpose. The vegetable and fruit marketers are mostly affected by the demonetization. More than 90% of transactions are still based on cash, so it is very difficult to have success in cashless economy Pradnyasurwade (2017). The retailers were in confusing state of condition in fixing price of products and rate of GST be charged on the products and services at the moment the duality came into existence. All the dealers invariably their size of business faced the issue of legal formalities in adoption of GST. The retailers were given a space in selling their existing stock at previous prices, but they intimidated the consumers by selling the products at GST rate. Whatever the reforms taken place; the authority should wary in protecting the interest of people.



APPENDIX

Table-1 Effect of Demonetization on the Business

Retailers	Demonetization affects your business			Total
	Yes, certainly	Not much	Absolutely, no	
Small	5 (27.8)	9 (50)	4 (22.2)	18(100.0)
Medium	8 (61.5)	4 (30.8)	1 (7.7)	13 (100.0)
Large	4 (44.4)	2 (22.2)	3 (33.3)	9 (100.0)

Table- 2 Changes in Sales due to Demonetization

Type of Business	Percentage of changes in sales				Total
	Below 10	10-20	20-30	Above 30	
Electrical	8 (72.7)	2 (18.2)	0 (0.0)	1 (9.1)	11 (100.0)
Textile	6 (66.7)	1 (11.1)	2 (22.2)	0 (0.0)	9 (100.0)
Automobile	4 (44.4)	3 (33.3)	1 (11.1)	1 (11.1)	9 (100.0)
Kirna Store	3 (27.3)	4 (36.4)	2 (18.2)	2 (18.2)	11 (100.0)

Table-3 Dealers Perception on Demonetization

Reasons	Frequency and Rank given by the respondents					Total	Rank
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree		
Implementation of demonetization is fair	25	36	39	20	3	123	III
It curbs the black money	15	28	42	18	7	110	IV
It pushes the digitalization	70	36	33	4	1	144	I
It improves the status of common man	5	28	42	24	6	105	V
It adversely affects the business	20	60	36	12	3	131	II

Table-4 Demonetization urges into Digitalization

Monthly Turnover	Demonetization Pushes into Digitalization					Total
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
Small dealers	6 (33.3)	7 (38.9)	5 (27.8)	0 (0.0)	0 (0.0)	18 (100.0)
Medium Dealers	5 (38.5)	1 (7.7)	5 (38.5)	2 (15.4)	0 (0.0)	13 (100.0)
Large dealers	3 (33.3)	4 (44.4)	1 (11.1)	0 (0.0)	1 (11.1)	9 (100.0)

**Table-5 Impact of GST on Business**

Retailers	GST affects your business			Total
	Yes, certainly	Not much	Absolutely, No	
Small	4 (22.2)	12 (66.7)	2 (11.1)	18 (100.0)
Medium	5 (38.5)	6 (46.2)	2 (15.4)	13 (100.0)
Large	4 (44.4)	5 (55.6)	0 (0.0)	9 (100.0)

Table-6 Dealers Perception on GST

Reasons	Frequency and Rank given by the respondents					Total	Rank
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree		
Preparation and filing of GST is easy	15	24	36	34	2	111	VII
GST promotes to increase the sales	5	16	42	40	1	104	VIII
GST affects small business very badly	65	60	12	10	3	150	III
GST confuses the retailers	35	64	36	8	1	144	V
Sufficient time is not given to us for adopting GST	30	72	36	6	1	145	IV
The implementation of GST will result in the product and services to be more expensive.	30	76	45	4	0	155	II
GST has increased the various legal formalities.	80	76	15	0	0	171	I
GST curtails tax evasion	5	32	78	8	1	124	VI

**Table- 7 Size of Business and GST Legal Formalities**

Turnover	GST increases the various legal formalities			Total
	Strongly agree	Agree	Neutral	
Small	8 (44.4)	7 (38.9)	3 (16.7)	18(100.0)
Medium	5 (38.5)	7 (53.8)	1 (7.7)	13 (100.0)
Large	3 (33.3)	5 (55.6)	1 (11.1)	9 (100.0)

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ANALYSIS OF THE OUTER PART MICROFLORA OF THE SEEDS OF MELON CROPS AND THE EFFECT OF SEED TREATMENT PREPARATIONS

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ABSTRACT

This article reveals the results of experiments on microbiological analysis of harmful microorganisms present in the outer shell of melon and watermelon seeds in order to select seed treatment preparations.

In the republic, sowing of seeds of vegetable and melon crops after having the treatment with particular preparations in the open field is not allowed. Because of this, seeds produced in our conditions are planted without chemical treatment, and the spread of the disease in the cultivated plants is leading to a sharp decline in productivity.

KEYWORDS: *melon, watermelon, seed, microflora, seed treatment preparations, preparation, bacteria, actinomycetales, fungus..*

INTRODUCTION

One of the reasons for the spread of the disease is the pathogens of fungi, bacteria and viruses that remain in plant seeds and soil. The most damaging viral diseases in tomatoes and cucumbers occur mainly in seeds and soil [2, 5, 6].

In modern seed production technology, plant protection control measures are aimed at preventing the spread of insects, fungal, viral and bacterial diseases.

The plant protection system is designed for preventive measures and eradication, serves to clean the plant residues in open and closed areas, to clean the technical organs, to apply chemical or thermal treatment

of insects and diseases [1, 4, 6].

Treatment of melon seeds with preparations formalin and granozan against pests and diseases (NIUIF-2) has high effectiveness [3].

MATERIALS AND METHODS

Microbiological analysis of what harmful microorganisms are present in the outer part of melon and watermelon seeds is one of the main factors. For microbiological analysis of melon seeds, 1 g of each sample was weighed, ground in a mortar, and thoroughly mixed for 10 minutes in 10 ml of sterilized



water.

In the separation of bacteria, 1 ml of the prepared solution was placed in a sterilized Petri dish, 10 ml of artificial nutrient MPA was added to it and incubated for 2-3 days at a temperature of 28-30 °C in a thermostat. For isolating the fungi, 1 ml of the prepared solution was poured into a sterilized Petri dish, over which 10 ml of artificial Czapek media was added and incubated in a thermostat at 28–30 °C for 5–7 days.

RESULTS AND DISCUSSION

In the separation of actinomycetales, 1 ml of the prepared solution was placed in a sterilized Petri dish, on top of which 10 ml of artificial ammonia starch was added and incubated in a thermostat at 28-30 °C for 5-6 days. To determine the outer microflora of the seeds, the above-mentioned artificial media was poured into a sterilized Petri dish and incubated for 3–4 days at a temperature of 28–30 °C, after placing in it the melon seeds (Table 1).

Table-1
Analysis of outer part microflora of melon crop seeds

Crop	BPA			SAA			Czapek agar		
	Bacteria	Actinomyc e-tales	Fungi	Bacteria	Actinomyc e-tales	Fungi	Bacteria	Actinomyc e-tales	Fungi
Melon	11	-	5	4	-	2	3	3	5
Watermelon	12	-	11	5	-	2	3	2	5

When analyzing the outer microflora of melon crop seeds, in BPA – beef peptone agar nutrient media more than 11 bacteria and 5 fungi, in SAA- starch ammonia agar media 4 bacteria and 2 fungi, in Wort agar media 1 actinomycetale and in Czapek agar media 3 bacteria, 3 actinomycetales and 5 fungi were isolated.

When analyzing the outer microflora of watermelon seeds, 12 bacteria and 11 fungi were isolated in MPA – meat peptone agar media, 4 bacteria and 5 fungi in starch-ammonia media, 1 actinomycetale

in Wort agar media, 3 bacteria, 2 actinomycetales and 5 fungi were isolated in Czapek agar media.

After the treatment of melon seeds (the 15th day) with chemical and microbiological preparations, development of outer microflora of seeds was analyzed and determined (Table 2, Fig. 2).

Table-2
The effect of seed treatment preparations on the microorganisms in outer microflora of melon seeds

Seed treatment preparations	Application rate, g/ml/kg	Czapek agar		
		Bacteria	Actinomy-cetales	Fungi
Maxim, 3.5% SC.	5	-	-	-
Seles Top, 31.2% SC	5	-	+	-
Hercules, 6% WSC	3	-	-	-
Vial TT, 12.9% WSC	3	-	+	-
Bronopol, 12% P	6	-	-	+
Bronopol, 12% P	7	-	-	+
Gaicho gold, 35% WP	3	-	-	-
Gaicho gold, 35% WP	5	-	-	-
Kuklam-1 liquid	1,4	-	-	-
Kuklam-2 liquid	1,4	-	-	-
Trichodermin	1	-	-	-
Control (thermal treatment)	Thermal	-	+	+
Control	Without treatment	+	+	+

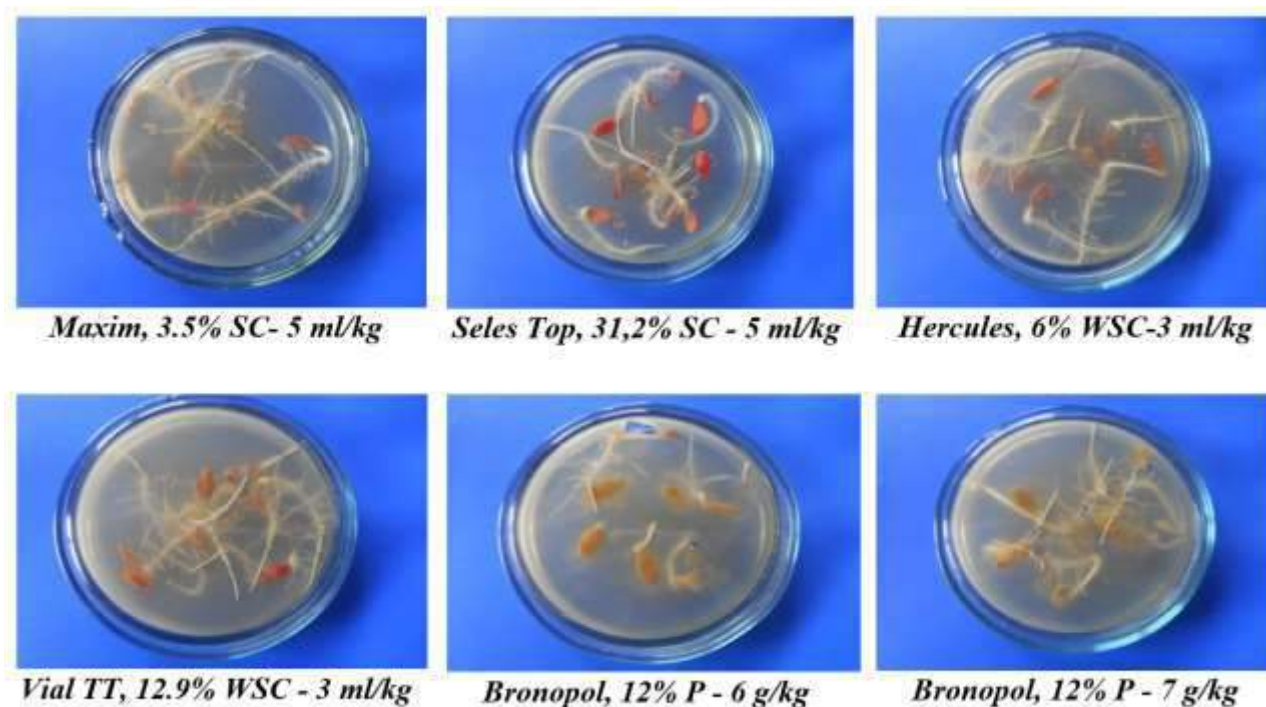


Fig. 2. Results of analysis of outer part microflora of melon seeds

According to the results of microbiological analysis, when determining the development of outer part microflora of the seeds in artificial nutrient media condition, no any microorganism development was observed in the variants in which the preparations Maxim, 3.5% SC – 5 ml/kg, Hercules, 6% WSC – 3 ml/kg, Gaucho gold, 35% WP – 3 g/kg, Gaucho gold, 35% WP – 5 g/kg, Microgrower “Kuklam 1” – 1,4 ml/kg, Microgrower “Kuklam 2” – 1,4 ml/kg were being tested. But, in Bronopol, 12% P – 6 g/kg, Bronopol, 12% P – 7 g/kg variants, *Aspergillus* and *Penicillium* families related species of fungi were found.

In experimental variants with preparations Seles Top, 31,2% SC – 5 ml/kg, Vial TT 12.9% WSC – 3 ml/kg, actinomycetales were found, in control (with thermal treatment) variant actinomycetales and fungi, in other control variant (without treatment) bacteria, actinomycetales and fungi were found.

CONCLUSIONS

Based on the data obtained it was known that bacteria, fungi and actinomycetales were separated from the outer part of the melon seeds. For this analysis, fungicides were used for seed treatment to clean the outer part microflora of melon seeds from primary microorganisms.

According to the data obtained, the microbiological analysis of melon seeds showed that the most common microorganisms found belonged to *Bacillus*, *Pseudomonas* family of bacteria, and *Aspergillus*, *Penicillium* families of micromycetes.

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EXPANDING DIMENSIONS OF DATA PROTECTION

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INTRODUCTION

The technology developed by United States (U.S.) military, during the cold war, to assist communications in the event of a nuclear attack in 1969 marked the start of the Internet. The two decades of 1980's and 1990's laid the foundation for the internet revolution. The lifting of restrictions on commercial use of the Net by National Science Foundation in U.S. allowed the use of internet for purposes other than research and education. The Internet does not simply take individuals out of their sphere, it redefines their sphere totally (Jacques Vallee,2003). Technology gives choices made by government, businessmen, and individuals. Although some special technology may be used to protect personal information and autonomy, the overwhelming tendency of advanced technology is to do the reverse. In this scenario, two forms of digital worlds are possible in the future or perhaps are already in existence - Solid State Society and the Grapevine Alternative with radically different purposes. The pervasiveness of the Internet technologies has resulted in the modern information revolution (Jonathan Zittrain, 2008). In the internet age, individuals have become "data subjects" and they fear about the protection of their sensitive information by other data subjects, government bodies or private corporates. Since the information age inevitably leads us to the rise of the individual, they may be best viewed by way of "Digital Society Personas", each of whom relates to technology and participates in society in a different way. (*Howard Rheingold, 1993*).

The dominant problem is that the organizations dealing with the identifiable personal data are the same organizations who share it online. Individuals are under two compulsions - compulsion of surveillance from government and virtual compulsion in the form of necessity to resort electronic transactions in day-today activities. The enormous information acquisition, transfer and processing power of cyberspace are viewed as exposing them all to more and more frequent and pernicious invasions of their privacy (David Baumer

and J.C.Poindexter,2002). The sheer quantity of information; the ability to collect unobtrusively, aggregate, and analyze it; the ability to store it cheaply; and the ubiquity of interconnectedness are capable of eroding the protection to personal information. Transaction data – both traffic and location data deserve our particular attention (Serge Gutwirth,2009). Infringements of the recognised rights have created new concerns in human social systems cybercrime, and privacy concerns etc. They affected people's lives either directly or indirectly. Recent laws and decisions are creating millions of splintered rights in cyberspace, and these rights are destroying the commons-like character of the Internet, which has previously lead to such extraordinary innovation (Dan Hunter, 2003). The usefulness of existing rules governing cyberspace is challenged from complex cultural and national differences across the globe.

Legal solutions must acclimatize against the realities of the Internet and cyberspace. In modern cyberspace, an absence of rules (or at least enforcement) has led both to a generative blossoming and to a new round of challenges at multiple layers (Jonathan Zittrain, 2008). The sorry state of computer privacy and security can be checked by culmination of efforts from technologists, business acumen, administrators, legal professionals and much more.

MULTIFARIOUS ASPECTS OF PERSONAL DATA WITH SPECIAL REFERENCE TO CHARACTERISTICS, APPROACHES AND USE

In information societies, identity-relevant information look like guns and ammunition leading to theft, identity fraud or straightforward harm using the information (Jeroen van den Hoven,2008). At the same time, information can also be used for the advantage of the society. Data may be collected before, during, or after a business transaction and data collection may be known or unknown by the consumer. A productive use of information is one that makes it more valuable, including collaboration,



remixing, and validation. Destructive uses leave the information less valuable, and include misrepresentation, misidentification and dilution.

1. Concept, Definition and Classification of Personal Data

Data are constructs from facts, from social processes of definition, selection, and collection. They serve and are defined by, interests, and relate to the purpose of their construction. They are only capable of being comprehended in the social context. What constitutes as data will differ from context to context. Data always have a purpose - they serve interests and those purposes are crucial in their definition, selection and collection and in deciding what is done with and to them. The key point is that data cannot be understood outside of the social contexts of their construction and the interests that they are proposed to serve.

(a) Meaning and Definition of Personal Data

“Personal information consists of those facts, communications or opinions which relate to the individual and which he may consider as *intimate or*

sensitive and therefore to want to reserve or at least *restrict* their collection, use or circulation” (Raymond Wacks, 2010). Facts are not confined to textual data, but encompass a wide range of information, including images, DNA and genetic and biometric data such as fingertips, face and iris recognition, and the ever-increasing types of information about us. On its own, an item of information may be perfectly *innocuous*, but when combined with another piece of equally inoffensive data, the information is transformed into something genuinely private. In any event, no item of information is in and of itself personal. An anonymous medical file, bank statement or lurid disclosure of a sexual affair is harmless until linked to an individual and only when the identity of the subject of the information is exposed, it becomes personal. The norms determining the nature of information are culture-relative as well as variable. Privatness is not an attribute of the information itself, the same information may be regarded as very private in one context and not so private or private at all in another.

(b) Classification of Personal Data

Table-2.2: Sensitive Data under Primary International Instruments

Sr.No.	Council of Europe Convention 1981,	UN Guidelines,1990	EU Data Protection Directive,1995
1.	Racial origin	Racial or Ethnic origin	Racial or ethnic origin
2.	Political opinions	Political opinions	Political opinions
3.	Religious or other beliefs	Religious/philosophical/other beliefs	Religious and philosophical beliefs
4.	Sexual life data /Sex life	Sex life	Sex life
5.	Health data	-	Health
6.	-	Membership of an association and Membership of a trade union	Trade-union membership
7.	-	Colour	-
8.	Criminal convictions	-	-

Table 2.2 points out the sensitive data as defined expressly under Council of Europe Convention, 1981, UN Guidelines,1990 and EU Data Protection Directive,1995. It further shows that racial origin, political opinions, religious/philosophical beliefs and sex life are the four common data in all three instruments. Whereas criminal convictions found place only under Council of Europe Convention 1981; colour only under UN Guidelines,1990 ; and health as well as membership of trade union under two of them.

(i) Sensitive Data as a Special Category of Protected Data

Certain items of personal information are intrinsically more sensitive than others and therefore warrant stronger protection. The term sensitive data

was originally used under the Council of Europe Convention 1981 on Personal Data. Sensitive data means personal data denoting racial origin, political opinions or religious or philosophical beliefs, trade union membership, and the processing of data concerning health or sex life. Thus, personal data has been categorised as sensitive data due to its very sensitive character. Swiss Federal Data Protection Act, 1992 protects Personality profiles under Article 12. Personality profiles are collections of data that allow the appraisal of essential characteristics of the personality of an individual (for example, personnel files often fall into this category). The various words used - “revealing”, “referring to”, “relating to”, “as to”, “on” appear to be very similar, however, the terms can have implications, in particular as concerns



matters which can be said to indirectly “reveal” certain sensitive matters.

The logic of sensitivity seems to imply that all data concerned should be subject to the same degree of restriction. Sensitivity lists must be phrased in a way that unmistakably indicates their purely exemplary character and their components can hence always be complemented or replaced. Contextualized Approach to Sensitive Data contends that personal data becomes sensitive according to its context, which was formerly adopted by countries such as Austria and Germany. It is an abstract categorization. Purpose Based Approach to Sensitive Data considers the purpose underlying the processing of personal data, that is, whether the processing is intended to reveal sensitive data. It has been advocated by the various regional and national organizations. All data must consequently be assessed against the background of the context that determines their use. The specific interests of the controller as well as of the potential recipients of the data, the aims for which the data are collected, the conditions of the processing and its possible consequences for the

persons are factors that, put together, allow both the range and effects of the processing to be discerned and thus to determine its degree of sensitivity. At present, only purpose based approach holds prominence and is widely accepted.

(ii) **Personal Identifiable Information (Data)**

Personal Identifiable Information (Data) is a central concept in data protection law and requires a broad definition in light of modern technologies involving data mining and behavioral marketing (Paul M. Schwartz and Daniel J. Solove, 2011). Technology is now posing a considerable challenge to the non-PII side of the dichotomy and the wide availability of so much information about people heightens the ability to turn non-personally identifiable information into one. The broadness must be clear so as to avoid encompassing nearly all information. **Table 2.3** below provides the reflection of three kinds of approaches to Personal Identifiable Information in brief.

Table – 2.3 : Approaches to Personal Identifiable Information

Sr.No.	Approach	Standard
1.	Tautological Approach	Any information that identifies a person
2.	Non-public Approach	Focus on what PII is not rather than on what it is
3.	Specific-types Approach	If the information falls into an enumerated group, it becomes a kind of statutory “per se” PII

The model places information on a continuum that begins with no risk of identification at one end, and ends with identified individuals at the other. Under the PII 2.0 model, information can be about an identified, identifiable or non-identifiable person. A person has been recognized when her identity is ascertained; an individual is identifiable when there is some non-remote possibility of future

identification. The risk level for such information is low to moderate and non-identifiable information carries only a remote risk of identification. When information refers to an identified person, all of the Fair Information Practices generally should apply. The key Fair Information Practices data security, transparency and data quality.

Table – 2.4: Personal Information and Relationship with Individual (Jerry Kang,1998)

Sr.No.	Relationship of Information with Individual	Information	Examples
1.	Authorship Relationship	Individual could have purposefully created or prepared the information typically to communicate that information to another party	A SMS created for some close person
2.	Descriptive Relation	Information could describe the individual in some manner such as could speak to some permanent or non-fleeting status of the individual, either biological or social	Age of individual, Medical condition etc.
3.	Instrumental Mapping Relation	Information primarily linked to the individual for institutional identification, secured access, or provision of some service or good	Login username or password of Bank account



Information can be identifiable to an individual in three ways: it can bear an authorship relation to the individual, a descriptive relation to the individual, or an instrumental mapping relation to the individual. The detailed information in this regard is reproduced in **Table 2.4** with examples.

CONCEPTUALIZATION, GENESIS AND PRINCIPLES OF DATA PROTECTION

Technological advancements not only lead to benefits, but new threats for our open society. The privacy laws that many governments have reasonably instituted to protect their citizens from having their personal information flow outside the control of the laws of their nation raises many difficulties when engaged in an Internet environment. Information privacy” or “data protection” were considered as discrete legal or technological issues. Data means representation of information, knowledge, facts, concepts or instructions which are being prepared or have been prepared in a formalized manner, and is intended to be processed, is being processed or has been processed in a computer system or computer network, and may be in any form (including computer printouts, magnetic or optical storage media, punched cards, punched tapes) or stored internally in the memory of the computer. With the growth of digital age, more and more personal information of consumers, citizens finds its way into massive databases held by the private sector, and the governments. The modern society depends for its survival on the use of personal information and this use is increasingly assuming a multi-national dimension adds fuel to the problem.

(a) Genesis of the Concept of Data Protection

The introduction of data banks in computers posed a threat to individual privacy and required methods to control the misuse of the technology. Personal privacy, as it relates to personal-data record keeping must be understood in terms of a concept of mutuality. The nomenclature “data protection” is derived from the German term “Datenschutz”. The realization that this nomenclature is problematic in several respects has resulted in increasing supplement by the term “data privacy”. The first law was enacted in the Land of Hesse in Germany in 1970. Sweden was the second country to introduce data protection legislation, with the Data Act, 1973. This Act regulated the automated processing of files containing personal data.

The development of data-protection norms is generational falling in four periods from 1970s till present. The shift from economic to broad-based political union brought with it new and more urgent attention to the protection of informational privacy.

The first-generation data-protection norms adopted functional look at data processing society, where data protection is seen as a tool specifically designed to counter the dangers that emerge from the use of computers. The statutes used the term “data” in “data banks”. Data protection statutes in the second generation witnessed re-orientation of data protection from technology regulation to individual liberty and freedom. Words such as “privacy” and “information protection” were employed instead of technical jargons: “data,” “data bank,” “data record,” “data base,” “data file.” The third generation of data protection emphasized informational participation and self-determination. The fourth generation witnessed amendments taking into account philosophical and ideological transformations. In the 1970s and the 1980s, when omnibus data-protection policy was confined to Western European societies, it was possible for some commentators in Canada, Australia, and the United States to argue plausibly that this legislation was a feature of a continental (civil) legal system, and that the Anglo-American system dictated a less regulatory regime that placed more responsibility on the individual citizen to demonstrate damage and make a claim through the courts. The online privacy has gained momentum only after 1990s.

Principles of Data Protection

At the core of data-protection legislation is the proposition that data relating to identifiable individual should not be collected in the absence of the genuine purpose and the consent of the individual concerned. Data Protection Statutes routinely stipulate that personal data must be collected by means that are both lawful and fair. Personal data may be used or disclosed only for the purposes for which the data were collected for or some directly related purposes, unless the data subjects consents.

Data protection laws have much the same aim and function that *policies of ‘sustainable development’* have in the field of environmental protection. They seek to safeguard the privacy and related interests of data subjects at the same time as they seek to secure the legitimate interests of data controllers in processing personal data just as policies of ‘sustainable development’ seek to preserve the natural environment at the same time as they allow for economic growth. Data protection instruments are expressly concerned with setting standards for the quality of personal information which breaks down into a multiplicity of interests. They tend to seek to manage most established systems of administration, organisation and control of information allowing processing of information about others for various legitimate ends. In its early stages, data protection laws tended to apply almost exclusively to textual information, now the developments in technology



have allowed any form of recorded information to come within the ambit of the legislation. Video images recorded by means of CCTV or similar camera systems ; and the biometric data collected are also granted shelter by the data protection statutes.

ELECTRONIC TRANSACTIONS

Information is collected by employees, voluntarily given by individuals at social media platforms and is of strategic nature available with the Government. Such information is often stored in electronic form and is also subject to loss.

(a) Transactions at the Hands of Employees

Employers collect personal data on job applicants and workers for a number of purposes: to comply with law; to assist in selection for employment, training and promotion; to ensure personal safety, personal security, quality control, customer service and the protection of property. There is a need to develop data protection provisions which specifically address the use of workers' personal data.

(b) Transactions at the Hands of Nation-States: Security Versus Autonomy

Telecommunications, energy, banking and finance, transportation, water, emergency services, and essential government service are in e form in this "wired" age. The absence of international conventions, addressing cyber warfare – Third Wave warfare raises concerns for States (Isaac Ben-Israel and Lior Tabansky, 2011). The computer warfare gives the attacker an advantage over the defender, unlike the conventional warfare.

(c) Social Media Platforms

The two-way interactive experience has been made possible by social media. The data subjects are themselves the originators or the authors of the proffered information. Certain privacy-related terms and conditions may apply depending on the specific social media activities or functionality a company leverages *within a social media platform*. The culture of sharing present on social media sites itself can lead to over-disclosure by employees, and the pure volume of data that can be mined from social media sites may allow competitors and criminals to connect-the-dots to reveal confidential or sensitive information.

The ease with which users reveal personal information in social networking services, as well as the simultaneous lack of awareness and understanding regarding the threats and dangers lurking in such disclosure of personal information, alarmed It is thus essential to rebalance the rights and obligations of both the providers of services and the users, to empower the user via technological tools and to create privacy-friendly default settings.

Sum-Up

The study has summarized the impact of the information revolution on the dimensions of information subject to protection at domestic and international levels. It discussed that the expression personal data must be given a wider interpretation in the light of new technologies. Attributively used descriptions may in coming times fall under the ambit of personal data. Both risks and benefits are associated with the collection and used of personal data without the consent of the data subject. There is a current and accelerating "personal information alienation," and that alienated information is being put to use in increasingly expansive ways that affect the individual to whom they pertain. The data subjects and data processors need to be placed on equal footing in determining how and when personal data may be converted into commercially viable products in the information marketplace.

Paul M. Schwartz and Daniel J. Solove have proposed that the necessary legal protections should generally be different for identified and identifiable data against the prevalent reductionist and expansionist approaches. In the reductionist view (adopted by United States , the tendency is to consider PII as only that personal data that has been specifically associated with a specific person, leaving too much personal information without legal protections. The expansionist approach treats identified and identifiable data as equivalent.

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THE IMPACT OF THE DEVELOPMENT OF AIR PINANG IRRIGATION NETWORK ON THE DEVELOPMENT OF WATER PINANG VILLAGE, SIMEULUE REGENCY, ACEH PROVINCE

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ABSTRACT

This study aimed to analyze the impact of the development of the Air Pinang irrigation network on the productivity of rice plants in Air Pinang Village, Simeulue Regency. The research was conducted in Simeulue Regency regarding the effect of the development of the Air Pinang irrigation network on the development of the area of the Pinang Village, Simeulue Regency, Aceh Province. The method of analysis used in this study was the t-test with a total of 78 respondents. The results showed that the impact of Air Pinang Irrigation Network Development shows that there are differences in the productivity of farmers' rice plants before and after the Air Pinang Irrigation Network is built and shows a significant effect. The average value of farmers' rice plant productivity before the construction of the Air Pinang Irrigation Network was 3.70 per hectare in one planting season and the average value of rice plant productivity after the construction of the Air Pinang Irrigation Network was 5.46 per hectare in one crop season. These findings suggest a difference of 1.76 per hectare in one planting season.

KEYWORDS: *Air Pinang Irrigation Network, Lowland rice productivity*

1. INTRODUCTION

The government has built various irrigation projects aimed at meeting agricultural irrigation needs and also as a means of tackling or preventing flooding. In accordance with the Decree of the Minister of Public Works number: 293 / KPTS / M / 2014, regarding the determination of the status of irrigation areas whose management is the authority and responsibility of the government, the provincial government, and regency/city governments, that in Simeule Regency there are 28 Irrigation Areas with regency authority, with an area of 2,950 ha. However, seeing the potential of water resources in Simeule Regency, especially the existing rivers, there

are still many that can be used to support the development of agricultural irrigation.

Air Pinang Village is one of the villages located in the Delog Sibao settlement, East Simeulue District, Simeulue Regency which is far from the district center. The area of Air Pinang Village is ± 6,000. m², which is divided into 5 (five) hamlets, namely Air Manis Hamlet, Karya Baru Hamlet, Karya Jaya Hamlet, Pinang Jaya Hamlet, and Blang Padang Hamlet with a population of 1,345 people, the majority of whom are Muslim and are livelihoods of farmers, traders, and fishermen, some become an employee in government and private offices.

The community hopes that the development of the Air Pinang irrigation network in Air Pinang



Village can have an impact on farmers' income in increasing the standard of living for the better welfare of the farming community. Apart from the irrigation system, rural agricultural production depends on the agricultural production factors used, such as land area, labor, seeds, fertilizers, and pesticides used.

Rural development has a strategic meaning and role in the framework of national development because the village and its communities are the foundation of economic, political, socio-cultural, defense and security strength as well as the central point of national development. Village development along with various problems in it is the development that is directly related to some of the people in rural areas

Objective of the study

This study aims to analyze the productivity of rice plants before and after the irrigation network in Air Pinang Village, Simuelue Regency

2. RESEARCH METHODOLOGY

This type of study is a descriptive description. The research methodology used in this study is quantitative where the analysis of data uses inferential statistics. Research has been conducted in Simeulu Village, East Simeule subdistrict, Simeule Regency, Aceh Province. The location selection was made on the basis that the Air Pinang Irrigation Network is located in Air Pinang Village, Simeulu Regency and that there are changes in the productivity of the rice plant and the land use of the community. The populations of this study were all households in Air Pinang Village, totaling 358 households. Sampling in this study will be conducted using cluster random sampling. The Yamane formula is used to determine the minimum sample size (Sugiono, 2004). Thus, the minimum sample size in this study was as many as 78 households. Data collection tools used in this study were interview guidelines and questionnaires, then the answers given by respondents to the questionnaire given for analysis were given weighted scores and analyzed using the Net Balance method.

To test the formulation of rice productivity problems before and after the Air Pinang irrigation network was available, the average difference test use paired samples (paired samples test t-test).

3. LITERATURE REVIEW

Soemarwoto in Rahmaniar (2018) states that impact is the process of the occurrence or emergence of pollution, both from the physical and social environment which will result in decreased quality and disruption of health and peace of living things including humans.

Tjahja (2000) argues that development is a planned change from one situation to another that is

considered to be better. Supardi (1994) argues that development is an integral and comprehensive social process, either in the form of economic growth or social change, for the sake of a more prosperous society.

Water is a determining factor in the process of agricultural production. As a result, investment in irrigation is very important and strategic in providing water for agriculture. To meet water needs for different agricultural business needs, water (irrigation) must be provided in the right quantity, time, and quality, otherwise the growth of plants will be disturbed, which in turn will have an impact on agricultural production (Directorate of Water Management, 2010).

In general, the government's budget for development is projected to have an impact on the economy. Indicators of economic impact include (1) distribution of income, (2) allocation of resources, (3) economic productivity, and (4) constraints on the economy (Haryono, 2004).

According to Dumairy (1992), irrigation is an attempt to provide an artificially control both groundwater and surface water to support agriculture. The right amount of water to be supplied to the rice field, the time of application and the availability of drainage channels are all factors that influence the success of the crop. Agronomically, high yielding rice seeds are very responsive to fertilization, provided that there is sufficient water. This means the availability of sufficient water will be able to increase the productivity of lowland rice.

The concept of regional development in Indonesia was born from an iterative process that combines the basics of theoretical understanding with practical experiences as a form of dynamic application (Sirojuzilam and Mahalli, 2010).

Hoover and Giarratani in Nugroho and Dahuri (2004) have concluded three significant pillars of the regional development process, namely:

(1) Imperfect mobility of factors, (2) Imperfect divisibility, (3) Imperfect mobility of goods and services. Budiharsono (2005) notes that at least 6 pillars/aspects must be supported by regional development, namely (1) biogeophysical aspects; (2) economic aspects; (3) socio-cultural aspects; (4) institutional aspects; (5) location aspects, and (6) environmental aspects.

4. RESULT

An overview of Simeulue Regency and the Air Pinang Irrigation Network

Simeulu Regency is one of the youngest regencies in the province of Aceh, the result of the ongoing struggle that began in 1957 at the Simeulu People's Congress in Luan Balu. Before 1965, the area was an administrative area that was part of the West Aceh Regency. Since 1967, the status has been



as an assistant to the Regent and subsequently by Government Regulation No. 53 of 1996 became an Administrative Regency, then on 12 October 1999, it was inaugurated as an Autonomous Regency based on Law No. 48 of 1999 at the same time as Bireun Regency, Aceh Province.

Based on the Earth Map of Indonesia at a scale of 1: 50,000, the land area of Simeulue Regency is geographically located in the west of Aceh Province with a distance of 105 nautical miles from Meulaboh, West Aceh Regency or 85 nautical miles from Tapak Tuan, South Aceh Regency and is in an astronomical position between 02 ° 15 '03' - 02 ° 55' 04 " North Latitude and 95 ° 40 '15' - 96 ° 30' 45 " East Longitude, with a length of Simeulue Island 100 ± Km and a width between 8 - 28 Km.

The Air Pinang Irrigation Network was built in 2016 which was implemented in Air Pinang Village, East Simeulue Subdistrict, Simeulue

Regency, a form of a forum for the Government's concern to the people carried out by the Directorate General of Water Resources of the Ministry of Public Works and Public Housing, Balai Sungai Wilayah II, Aceh Province. The Pinang Water Irrigation Network irrigates 216 hectares of land.

Based on the Law on the Establishment of the Regency, the land area of Simeulue Regency and other small islands is 212,512 Ha, while based on the Digitation of the Indonesian Earth Map, the Regional Development Planning Agency of Simeulue Regency, the land area of Simeulue is 183,809.50 Ha or around 3.26% of the total area mainland of Aceh Province, with the following boundaries:

- North side : Bordering the Indian Ocean;
- East side: Bordering the Indian Ocean;
- West side : Bordering the Indian Ocean; and
- South side : Bordering the Indian Ocean.

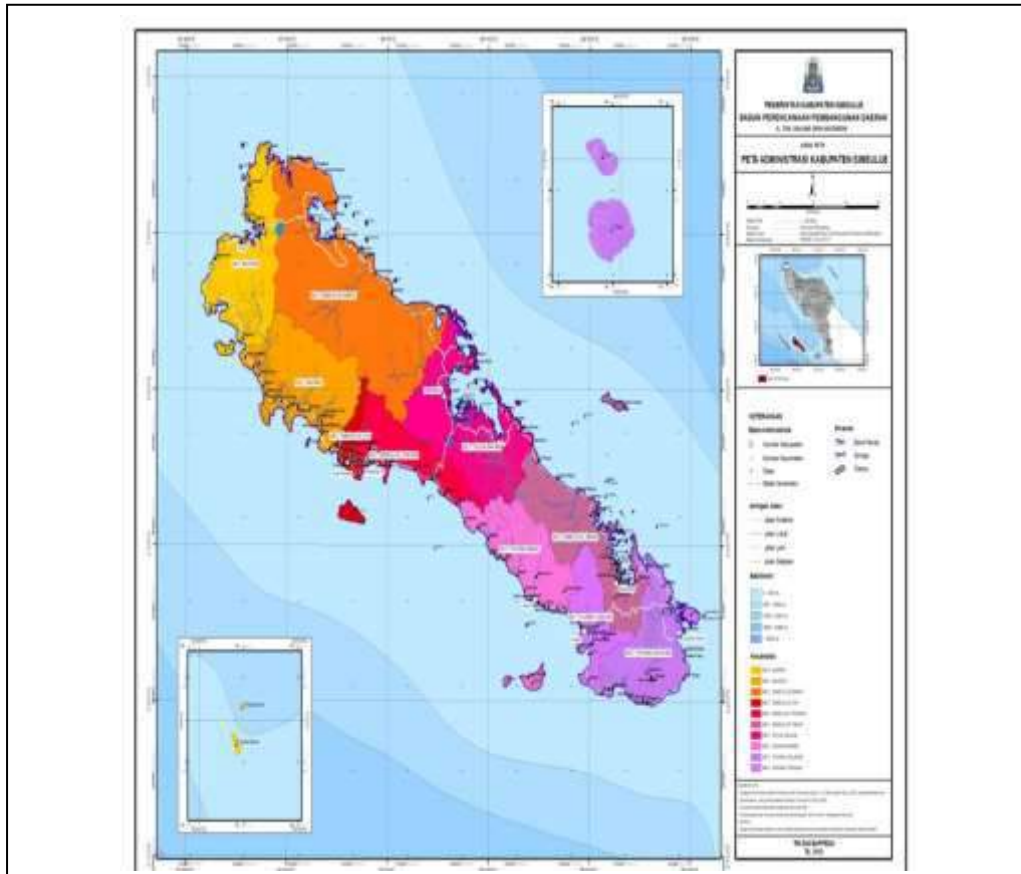


Figure 1. Administrative Map of Simeulue Regency



Table 1
Characteristics of Farmer Respondents

Variabel	Category	Frequency	Precentage
Age	30 – 35	16	21
	36 – 40	18	23
	41 – 45	25	32
	> 45	19	24
Level of education	Primary school	13	17
	Junior High School	17	22
	High School	28	36
	Diploma	20	26
Total Family Dependents	2 – 3	15	19
	4 – 5	44	56
	6 – 7	19	24
Length of stay (Year)	12	15	17
	16	21	26
	31	40	51
	19	24	31

Changes in Rice Productivity Before and After the Development of the Pinang Irrigation Network

Tabel 2
Different Test Results Calculation of Rice Productivity Before and After the Air Pinang Irrigation Network

Description	Productivity (ton)	F	Sig
Before the Irrigation Network	3,70	34,194	0,000
After the Irrigation Network	5,46		
	1,76		

Source: Primary data processed, 2020

Table 1 show that the productivity of farmers' rice plants before and after the Air Pinang Irrigation Network shows a difference. To prove the above hypothesis, using paired two-sample test analysis and from the two-sample test statistics it is known that the average value of farmers' rice plant productivity before the Air Pinang Irrigation Network was 3.70 tons per / Ha 1 planting season and the value average productivity of rice after the Air Pinang Irrigation Network is 5.46 per/ha 1 planting season. These results indicate a difference of 1.76 tonnes/ha per 1 planting season.

By using the analysis of the different tests of two samples in pairs, it is known that there is a difference in the average productivity of farmers' rice plants before and after the Pinang Irrigation Network exists with a significance level of 0.05. This can be seen from the output of the SPSS analysis by obtaining a Sig value of 0.000. These results indicate that H_0 is rejected and H_a is accepted because the productivity of the farmers' rice plants before and after the Air Pinang Irrigation Network shows a significant effect. After all, the results of the paired two-sample test are $0.000 < 0.05$.

The conclusion from the results of the two-sample test indicates that the null hypothesis is rejected or that the alternative hypothesis is accepted,

namely that there is a significant difference in the average test productivity of the rice plants before the irrigation network exists and the productivity of the farmers' rice plants after the Air Pinang Irrigation Network exists. The results of the SPSS calculations also show that the average productivity of farmers' rice plants after the Air Pinang Irrigation Network was higher than the average productivity of farmers' rice plants before the Air Pinang Irrigation Network was created.

This means that the Air Pinang Irrigation Network provides better results than without the Air Pinang Irrigation Network. There is a major effect of the differences between the average productivity of farmers' rice after the Air Pinang Irrigation Network and the average productivity of farmers' rice plants before the irrigation network operates, since rice plants need more water.

5. DISCUSSION

Water or irrigation is one of the important factors that can influence the growth of rice plants. The presence of irrigation is one of the aids of water supply for rice plants, where during the dry season the availability of water is reduced and there is an unstable distribution of water in lowland rice plants, which is why the local government is building



secondary irrigation channels that can connect the flow of the river to several channel points which then irrigates the rice fields as well as the irrigation system built in the East Simeulue subdistrict, Simeulue Regency. The irrigation system is one of the factors determining the planting time for lowland rice to be planted 1 to 3 times in one year, depending on the condition of the farmer's agricultural land.

Increasing productivity will have an impact on the development of other sectors, such as trade and industry, which will reduce unemployment and increase economic activity. Local economic development can create new jobs and stimulate local economic activities aimed at increasing the number and variety of job opportunities available to the local population, which will have an impact on increasing economic growth, reducing unemployment, reducing poor households, improving community welfare, and in the long term. Local government revenue from the tax sector may be increased (Pasaribu, 2009).

6. CONCLUSION

The impact of the Air Pinang Irrigation Network Development shows that there are differences in the productivity of farmers' rice plants before and after the Air Pinang Irrigation Network exists and shows a significant effect. The average value of farmers' rice plant productivity before the Air Pinang Irrigation Network was 3.70 tons per/Ha 1 planting season and the average value of rice plant productivity after the Air Pinang Irrigation Network was 5.46 per/Ha 1-time season plant. These results indicate a difference of 1.76 per/ha 1 planting season.

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“DESIGN A 128-BIT VEDIC MULTIPLIER”

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ABSTRACT

Vedic arithmetic is that the name given to the traditional Indian system of arithmetic that was rediscovered within the early twentieth century from ancient Indian sculptures (Vedas). This paper proposes the planning of high-speed religious writing number mistreatment the techniques of religious writing arithmetic that are changed to boost performance. A high-speed processor depends greatly on the number because it is one in every of the key hardware blocks in most digital signal process systems further as normally processors. religious writing arithmetic includes a distinctive technique of calculations supported sixteen Sutras. This paper presents study on high speed 128x128 bit religious writing number design that is sort of totally different from the standard technique of multiplication like add and shift. As the multiplier provides 256 bit of output. The design is developed on vhdl language.

KEYWORDS: *vhdl (VHSIC Hardware Description Language)*

I. INTRODUCTION

Multiplication based operation such as multiply and accumulated and inner product are among some of the frequently used Computation - Intensive Arithmetic Functions currently implemented in many Digital Signal Processing applications such as convolution, Fast Fourier transform, filtering and in microprocessors in its arithmetic and logic unit. Vedic multiplier uses Vedic sutras. Word 'Veda' stands for 'knowledge' in Sanskrit. Vedic mathematics is conceived to be rebuild from Vedas by Sri Bharti Krishna Tirathaji between the years 1911 to 1918 The Vedic mathematics has been divided into sixteen different Sutras which can be applied to any branch of mathematics like algebra, trigonometry, geometry etc. Its methods reduce the complex calculations into simpler ones because they are based on methods similar to working of human mind thereby making them easier. It has been seen that being coherent and proportional, they take minimum power and take lower chip area. Vedic Mathematics deals with Sixteen Sutras. These sutras are given below alphabetically with their brief meaning. All these sutras have huge study.

II. METHODOLOGY

Proposed work

Vedic mathematics is part of four Vedas (books of wisdom). It is part of Sthapatya- Veda (book on civil engineering and architecture), which is an upa-veda (supplement) of Atharva Veda. It gives explanation of several mathematical terms including arithmetic, geometry (plane, co-ordinate), trigonometry, quadratic equations, factorization and even calculus.

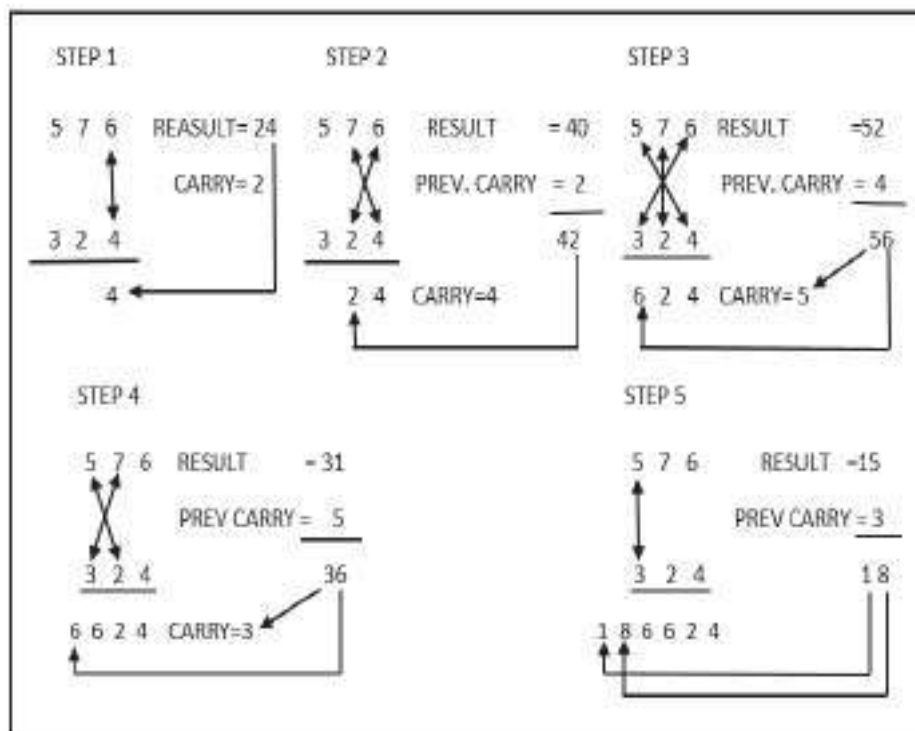
In vedic mathematic two sutras are dedicatedly used for multiplication functions. One is Nikhilam Navatascaramam Dasatah sutra and other is Urdhva-Tiryagbhyam sutra. Our focus is only on the Urdhva-tiryagbhyam sutra as in the Nikhilam Navatascaramam Dasatah sutra, multiplier and multiplicand both are required to be nearer to bases of 10, 100, 1000 that is increased powers of 10. The sixteen sutras of Vedic mathematics and their meaning are listed in Table 1.

**Table 1: List of Vedic sutras.**

Sr no	Sutras	Meaning
1	Ekadhikena purvena	By one more than previous one (division)
2	Nikhilam navatascaramam	All from nine and last from ten (multiplication)
3	Urdhva tiryagbhyam	Vertically and crosswise (multiplication)
4	Paravartya yojayet	Transpose and adjust (division of polynomial equation)
5	Sunyam sayasamuccaye	When the sum is the same that sum is zero
6	Sunyamanyat	If one is in ratio, the other is zero
7	Sankalana-vyavakalanabhyam	By addition and by subtraction
8	Puranapuranaabhyam	By the completion and non-completion
9	Calana kalanabhyam	Differences and similarities
10	Yavadunam	Whatever the extent of deficiency
11	Vyastisamastih	Part and whole
12	Sesanyakena caramena	The remainders by the last digit
13	Sopantyadvayamantyam	The ultimate and twice the penultimate
14	Ekanyunena purvena	By one less than the previous one
15	Gunitasamuccayah	The product of the sum is equal to the sum of the product
16	gunakasamuccayah	The factors of the sum is equal to the sum of the factors

Figure 2 shows the steps required for multiplication by using Urdhva-Tiryagbhyam sutra. For this we consider the multiplication example of 576×324 . From figure 2 first multiply the left most digit 6 of the multiplicand vertically by the left most digit 4 and it gives the result as 24 from that result

product 4 and carry 2 set down as the left hand most part of the answer; then multiply 7×4 and 6×2 crosswise and add them get 40 and add carry 2 from previous as the sum set it down as the middle part of the answer and so on. Lastly, we get the result as $576 \times 324 = 186624$

**Fig(2)**



III. TOOLS REQUIRED

Software tools

1 **XilinxISE:**

Integrated Synthesis Environment) is a software tool produced by Xilinx for synthesis and analysis of HDL designs, enabling the developer to synthesize ("compile") their designs, perform timing analysis, examine RTL diagrams, simulate a design's reaction to different stimuli, and configure the target device with the programmer.

2 The Xilinx ISE is a design environment for FPGA products from Xilinx, and is tightly-coupled to the architecture of such chips, and cannot be used with FPGA products from other vendors. The Xilinx ISE is primarily used for circuit synthesis and design, Other components shipped with the Xilinx ISE include the Embedded Development Kit (EDK), a Software Development Kit (SDK) and Chip Scope Pro.

IV. RESULTS AND CONCLUSION

Device utilization

Following subsections presents the device utilization and memory requirement

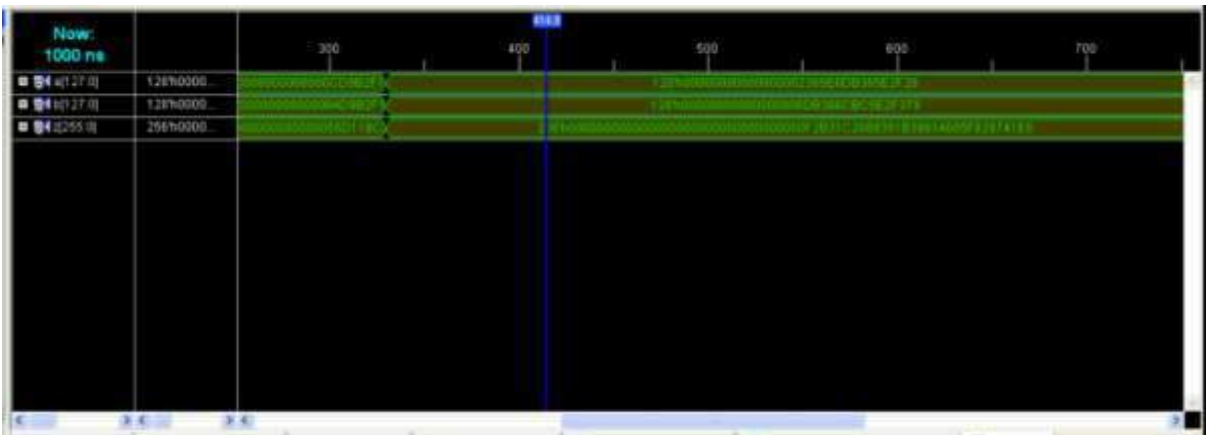
Device Utilization Summary (estimated values)			
Logic Utilization	Used	Available	Utilization
Number of Slice LUTs	36247	15000	168%
Number of fully used BR Slices	0	36247	0%
Number of bonded IOBs	512	220	232%

Delay:

Total delay: 23.056ns
 Logic delay: 12.411ns
 Route delay: 10.645ns route



Top level entity of 64-bit BIST FOR VEDIC MULTIPLIER



SIMULATION RESULTS OF 128X128 BITS VEDIC MULTIPLIER

- a : Input data 128 – bit
- b : Input data 128 – bit
- z : Output data 256- bit

a = 128’h

b = 128’h

y =256’h0F2B31C2889351B3981A005F829741E

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A STUDY ON IMPACT OF SOCIAL MEDIA INFLUENCING THE STUDENTS ACADEMICS

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ABSTRACT

The purpose of this study is to evaluate the impact of social networks on the academic performance of selective students. In this article, the authorities discuss the real impact of youth communication on social media. The description of the investigation is used to obtain an accurate profile of the situation. It was carried out during the semester of the academic year 2019-2020, summary that social red is convened in an integral part of this complete students' life, wasting most of their free time. Undoubtedly, on social networks, there are also useful things for the development of students. Additionally, communicating with peers through social media can help students socialize, find new friends, and discuss study problems with them. Therefore, it can be concluded that social redesigns have a double impact on student representation, and there is a need to get closer. Use of social networks by adolescents with maximum responsibility.

KEY WORDS: *Social media, network, academic performance students.*

INTRODUCTION

Today the internet has taken a firm place in peoples live. It is difficult to imagine a young man a who at least once a day did not check for updates in social networks and did not lease through the news lines. When used properly, social media can be a valuable addition to a departments communication strategy. The modern reality requires us to stay in touch and keep abreast of the latest news and trends. However, does this tend affect the performance of the students? when social media such as facebook, youtube, and twitter appeared, our world was divided into online and offline. Social media or online technology platforms that help to connect the people together far and near. It issued to build relationship among people. With their help, we can communicate with each other, even on different continents listen to music, rebooks, look at photos and much more. social media have greatly simplified our lives and

tightly tide to ourselves. During the time spent discovering individuals for acquaintances. Youngsters go into different connections and get the chance to speak with a relatively boundless number of individuals and premium gatherings, with a wide range of identities, take in a considerable measure of stories, have the opportunities to trade suppositions of talk about issues important to them. Therefore, uses of social networks, in most case, are a representative of the younger generation. Social networking has become a common international trend which has spread across almost every corner of the world. The use of social media sites have exploded and evolved into an online platform where people create content, share it, bookmark it and network at a prodigious rate. Because of its ease of use, speed and reach social media is fast changing the public discourse in society and setting trends and agenda in topics that range from the environment and politics to



technology and entertainment industry. In the last ten years, the online world has changed dramatically, thanks to the invention of social media, young men and women now exchange ideas, feelings personal information, pictures and videos at a truly astonishing rate. Seventy three percent of wired American teens now use social media websites. The increased use of social networking websites has become a social norms and way of life for people from all over the world. Teenagers and young adult have especially embraced these sites as a way to connect with their peers around the globe, share information, reinvent their personalities, and showcase their social lives.

OBJECTIVE OF THE STUDY

1. To analyse the impact of social media on student's academic activities.
2. To find out the negative influences among the students activities.

REVIEW OF LITERATURE

According to Rithika.M and sara selvaraj reveals that social media networking sites like Facebook.

Twitter, Orkut, etc diverting students from their studies. Students spend more time on social media than they do using personnel email. Even though, there is loss of privacy and safety, social media provides opportunities for connecting with friends, classmates, and people with shared interest. Zahid amin et al., their study indicate that the effect of social media can be positive as in their study closely determined the real effect of social media sites. Agwi Uche Celestine et al., there study reveals that the nature of social media activities which the student engages in does not have any significant impact on the student academic performance.

RESEARCH METHODOLOGY

The methodology adopted studying the objective of the project was surveying the students in Thoothukudi town. So keeping in view the nature of requirement of the study to collect all the relevant information regarding the student's activities. Direct personal interview method with the help of structured interview schedule was adopted for collection of primary data and secondary data are used.

ANALYSIS AND DISCUSSION

Table-1 Maintaining Social Networking Accounts

GENDER	Maintaining social media networking Accounts					Total
	None	1	2	3	4 or More	
Male	2 (16.7)	5 (41.7)	0(0.0)	2(16.7)	3(25.0)	12(100.0)
Female	4 (22.2)	6 (33.3)	4 (22.2)	2 (11.1)	2 (11.1)	18(100.0)

Source: Primary Data

Table-1 shows that out of 30 respondents most of the respondents are female.18 respondents are female among them 33.3 respondents used 1 social media account. 22.2 percentage respondents not use social media and 22.2 percent respondents used 2 social media accounts. 11.1 percentage respondents used more than 4 social media accounts. 12 respondents are male among them 41.7 percent respondents

maintaining one social network site. 25 percentage respondents maintain more than 4 social media accounts.16.7 percentage respondents use 3 social media accounts. 16.7 percentage respondents not use any social media accounts.

**Table- 2 Perception about the social media**

Gender	Perception about the social media				Total
	Very important	Important	Neutral	Not Important	
Male	0 (0.0)	4 (33.3)	8 (66.7)	0 (0.0)	12 (100.0)
Female	2 (11.1)	6 (33.3)	8 (44.4)	2 (11.1)	18 (100.0)

Table-2 shows that out of 30 respondents 12 respondents are male among them 66.7 percentage neutral opinion to use the social media to their studies. 33.3 percentage respondents said social media networking is very important for their studies. 18 respondents are female among them 44.4 neutral

opinion about the social media. 33.3 percentage respondents said social media is very important and 11.1 percentage respondents said very important. Thus the table shows that most of the respondents said social media is used for their studies.

Table -3
Chi square tests for age and Impact of Social Media Networks

Impact of Social Media Networks	value	Df	Asymptotic significance	Result
Distract away from studies	21.417	9	.011	NS
More than the hours spend reading	10.607	9	.304	NS
Engage academic discussion on social media platforms	23.700	12	.022	S
SNS takes away from studying time	17.482	6	.008	S
Help to improve the grades	26.786	9	.002	S

Ho: There is no association between age and the impact of social media negatively influencing academic work of the students.

From the above table it is found that the calculated p value (.011) is higher than the significance level at 0.05. Hence, it is stated that there is no significant relationship exist between the age and distraction from studies. Calculated p value (.304) is higher than the significance level at 0.05. Hence, it is stated that there is no significant relationship exists between the age and spending time on social media. Calculated p value (0.022) is lower than the significance level at 0.05. Hence, it is stated that there is a significant relationship exists between the age and engaged on social media. Calculated p value (0.008) is lower than the significance level at 0.05. Hence, that there is a significant relationship between the age and distraction of study time. Calculated p value (0.002) is lower than the significance level at 0.05. Hence, that there is a significant relationship between the age and improve the grades.

CONCLUSION

Many teachers find social networking a great way to expand their personal learning network and to discover resources. Just about all students rely on social media of some kind as a part of their daily routine. The use of social-media for socialization and an a pastime is well known. But considering that many social media applications had their origins in the academic setting, it is interesting to assess the repercussions of social media on academia.

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INNOVATIVE DEVELOPMENT MANAGEMENT OF THE UNITED ARAB EMIRATES: PROBLEMS AND SOLUTIONS

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ABSTRACT

Currently, the economic modernization effective directions issue in countries with developed economies, including countries exporting oil and gas, is topical. Some examples of the modernization model in these countries have already taken shape. One example, despite the local conditions difficulties and uniqueness, was the modernization model of the United Arab Emirates (UAE). The starting conditions for the development of which were based on raw materials exports narrow base. An economic modernization the history and mechanism analysis in the UAE shows that here in the formation of the process strengths of economic modernization, the creation of infrastructure, both production and transport, commercial, service, and technological, played a crucial role. In the UAE, an effective contribution of infrastructure has been achieved by clearly linking the strategic areas of increasing the competitiveness of the country's economy with the priorities of infrastructure development. This allowed the UAE to acquire new factors of competitiveness.

KEY WORDS: *economic modernization, oil exporting countries, oil sectors of the economy, development strategy, infrastructure, competitiveness*

INTRODUCTION

The economic modernization effective areas identification in countries with economies in transition, including countries - exporters of hydrocarbon raw materials, makes many authors look for examples of the economic model of these countries. One of the examples of the implementation of such directions of modernization, despite certain difficulties and the uniqueness of national conditions, is the model of economic modernization of the United Arab Emirates (UAE). It is embodied in the UAE modernization strategy, the starting conditions for the development of which were based on an extremely narrow economic basis and a narrow natural resource base, and the development of the economy is carried out in difficult natural and climatic conditions. At the

beginning, the UAE's competitiveness was only driven by large revenues from oil exports. The UAE's modernization strategy was based on the purposeful implementation of the principles of economic policy declared there, the cornerstone of which was the course towards the maximum possible replacement of petrodollars with other sources of income. Such a replacement would have been impossible without the formation of a fundamentally new economic structure, the foundation of which was the creation of the infrastructure of the oil economy.

At the same time, the UAE modernization model, being one of the most successful examples of economic modernization in the Arab world, demonstrates the option of active inclusion in the global world economy and increasing the



competitiveness of the national economy, when the basis for modernization is the constant diversification of the economic structure.

RESEARCH METHODS

The work used the method of theoretical analysis of literary sources and statistical reviews, as well as ratings of economic and infrastructural development of countries published by statistics and international economic organizations and research centers. An important place is taken by the reliance on the method of economic analysis, especially in terms of studying the influence of individual factors or measures of economic modernization on the general functioning and on the transformation of the national economy on the example of the UAE.

RESULTS

The rapid economic transformation of the UAE, a country whose older generation remembers that only a few decades ago, the main occupation of the population was artisanal fishing, pearl mining and nomadic livestock rising, was expressed in building an economy, in terms of a number of indicators comparable to the economies of developed and leading newly industrialized countries. The way to implement the strategy of economic modernization of the UAE was investing in a new economy, the basis of the functioning of which was the construction of an advanced economic infrastructure, "buying", in the positive sense of the word, new development factors. At the same time, for the UAE, a special role was played by investment in the development of various infrastructure components (not only industrial, but also transport, commercial, social). This corresponds to the trend of world economic development (a decrease in the share of industrial production in gross product with an increase in the share of the service sector).

If we turn to the most important milestones in the movement towards the role of the world commercial, transport and logistics, tourism and, in part, an innovative state within the global economy achieved by the UAE, then the analysis of strategic measures of the UAE's ruling circles in the field of development allows us to judge those advantages and the results for the modernization of the UAE economy, which were provided by government-initiated investments in infrastructure. The implementation of plans for economic modernization through the creation of infrastructure in the UAE was especially clearly manifested in the example of one of the emirates of the Dubai Federation. In Dubai, an emirate with much smaller oil reserves than the largest emirate of the UAE - Abu Dhabi (Abu Dhabi occupies 85% of the territory of the

UAE, with 9% of the world's oil reserves), and a smaller territory than Abu Dhabi, before Abu Dhabi saw the need to turn to the oil development model. The Prime Minister of the UAE, the Ruler of Dubai Sheikh Rashid al-Maktoum came to the conclusion that it is necessary to show the society in the UAE the path of development "after oil", the exhaustion of which he declared. The key to entering non-oil development, Sheikh Rashid al-Maktoum, chose a plan to rapidly build business and economic infrastructure for new sectors of the economy, with the aim of opening them up to investors and business flows of a global scale, partly on preferential terms.

The infrastructure allocation in the UAE was a purposeful investment to ensure that a new economy could emerge in the oil-rich desert.

Considering the example of Dubai, it can be argued that here (as well as in the UAE as a whole) there is almost the most important role for the modernization of the country, the role of transport, commercial infrastructure and real estate infrastructure (which includes commercial and engineering facilities, municipal real estate and the utilities sector). Thus, in Dubai, the creation of the world's largest transport hubs, tied to the free economic zones created around them, acted as an infrastructural "gateway" to world commercial and financial flows, and a way of the fastest expansion of non-oil economic activity. The first complex area for the development of business and transport infrastructure in Dubai was the port of Mina (port Rashid), built in 1972, and by 1978, it received the largest container ships.

By 1979, the world's largest man-made port, Jebel Ali, was erected 35 kilometers southwest of Dubai, a structure comparable in scale to the Great Wall of China. It became the headquarters of the world's third largest port operator, Dubai Ports, and by 2004, Dubai became the third largest re-export hub in the world, rivaling Hong Kong and Singapore.

Another example of connecting the UAE to international business and tourist flows using a new transport infrastructure is the creation of an air transport infrastructure. In 1985, the first \$ 10 million was invested by the Dubai authorities in the creation of the Emirates airline, which provided the opportunity to deliver foreign tourists to the UAE, and this company became profitable and the largest in the world (for example, in 2004-2005, Emirates paid the government Dubai dividend of \$ 100 million). Emirates is an example of diversifying an oil-dependent economy with transport infrastructure: in 2016, when oil prices continued to fall sharply, Emirates ended the year with a record profit of \$ 2.2 billion, which was more than in 2015 by 50%. At the



same time, the total capacity of Emirates for the transportation of passengers and goods reached 56.4 billion ton-kilometers, and this year alone, 29 new aircraft were purchased, including 16 A380s and 12 Boeing 777-300ERs. This allowed the company to expand the geography of passenger traffic, adding new destinations to the existing 150 destinations (in particular Bali, Bologna, Cebu, Clark in the Philippines, Istanbul, Mashad, Multan, Orlando). The company has commercial centers in New Delhi, London, Moscow, Nigeria and other countries. Emirates' projected passenger traffic for 2016-2020 declared at least 70 million passengers per year. By reducing costs, Emirates offers customers the most favorable terms. It is very important that two airlines of the UAE - Emirates and Fly Dubai played a big role in the development of tourism in the UAE, so in 2015 the number of tourists increased in comparison with 2014 by 75%, to 14.5 million. The UAE is the Middle East's largest aviation infrastructure investor. In 2018, the UAE authorities announced investments of more than \$ 23.16 billion in the development of air transport infrastructure, which will give 4 national airlines (with a fleet of 502 liners for 2018) the ability to carry more than 75 million passengers per year, but total the capacity of the UAE's aviation infrastructure will exceed 300 million passengers per year.

Naturally, the UAE is developing airport infrastructure. There are 14 airports; the number of takeoffs and landings was 540 thousand per year. As of today, \$ 8 billion is invested in the development of Al Maktoum airport, \$ 7.6 billion - for the fourth phase of Dubai airport development, \$ 6.8 billion - for the development of Abu Dhabi airport and \$ 400 million - for the airport of the emirate of Sharjah. At the same time, the UAE is developing commerce in the field of aviation, the showcase of which is the Air Show in Dubai, where contracts for more than \$ 100 billion are usually signed [6]. Also, the UAE is developing subways, high-speed railways, and highways. More than \$ 4.3 billion is invested in the improvement of the road network in the World Expo 2020 Dubai area alone.

Transport infrastructure as a key to diversifying the country's economy in the context of globalization is inextricably linked with the development of commercial infrastructure. In this regard, one cannot fail to mention another infrastructure development initiative of Sheikh Rashid - the creation of the World Trade Center in Dubai. For this center, the largest building in the entire Middle East was erected in 1975-1979. The largest exhibition complex in the region was formed here; the Dubai School of Public Administration was formed, by analogy with the Harvard School of Business. Thus, the architectural

and infrastructural evolution of the emirate went through stages from the first significant projects to the most recent, such as preparations for Expo 2020, the Dubai Pearl technology cluster in the TECOM (Dubai Technology and Media Free Zone), a record-breaking 828-meter building Burj Khalifa, opened in 2010 and others.

The World Trade Center has become a cluster for the transformation of Dubai into an international trade, commercial and financial center, but at the same time a tourist destination. Dubai was able to firmly take the place of the world center of tourist shopping, which was achieved through the construction of many shopping centers (more than 40 of the largest and 3 thousand ordinary ones) and the provision of incentives to trading companies, thanks to which it was possible to ensure the flow of goods here from all over the world, and with notable discounts. A major shopping festival was opened in Dubai [7]. According to 2018 data, the Dubai World Trade Center generated revenue of \$ 3.5 billion (3.3% of Dubai GDP), in 2018 87,861 were employed in exhibitions, fairs, conferences and other business events, working.

The relationship between the UAE retail trade and services sector and tourism, as exemplified by Dubai, is also manifested in the fact that, according to statistics, the added value of the tourism sector in terms of hotel and restaurant services increased from 2006 to 2016. by 110% (from 9 to 19.5 billion UAE dirham, and in constant prices). Also, the value added in the Dubai retail sector has increased by 47% over these 10 years, from 72 to 107 billion dirhams. The obvious correlation between tourism and the trade sector of Dubai is confirmed by the fact that if in 2012 the expenses of tourists in Dubai reached 5.5 billion dollars (20.4% of retail sales), then in 2017 these expenses reached 8. \$ 9 billion (25% of sales). In general, in the UAE, the expenditures of foreign tourists visiting the country increased from 75.5 billion dirhams in 2012 to 132.9 billion dirhams in 2018, and the number of employed in the tourism sector - from 440.4 thousand people up to 604.3 thousand people Thanks to infrastructure development in the UAE, every ninth employed person works in the tourism sector, not only immigrants, but also representatives of the indigenous population.

It should be noted that in general in the UAE, in different emirates, but mostly in Abu Dhabi and Dubai, a number of infrastructure projects have been implemented to maximize the development of commercial, service sectors of the economy and the tourism economy. Among them there are projects that provide a combination of the UAE's image as a modern advanced urbanity and at the same time



exotic country with the flavor of the ancient Arab East, such as Medina Jumeirah in Dubai - a recreation of a traditional Arab city with markets, palaces, canals. There are luxurious hotels, traditional residential areas, traditional wind towers for cooling, forts, green gardens, an Arab market, a theater with 1000 seats, many restaurants, and canals dug through which wooden boats "abra" (water Taxi).

Other unique projects with a special flavor include the creation of the Bab al-Shams resort, a man-made oasis in the desert, and the construction of the man-made island of Palm. In another emirate of the United Arab Emirates, Sharjah, the Emirate's Investment and Development Authority has launched a major project, the Heart of Sharjah, as part of efforts to safeguard the emirate's cultural heritage. The initiative is the largest of its kind and envisions the complete restoration and revitalization of the historic districts of Sharjah by 2025. The aim of the project is to create a new tourist and trade attraction (which will include hotels, restaurants, cafes, shops, art galleries, traditional and modern markets, archaeological sites, museums, parks, trade representations). The Heart of Sharjah should embody the cultural heritage of the emirate. As for the projects associated with the already mentioned event, Expo Dubai 2020, according to experts, the UAE will bring added value of 33.3 billion dollars (122.6 billion UAE dirhams), of which 7.3 billion refers to the construction of infrastructure facilities. But this infrastructure will become the base without which it is impossible to host the events of Expo Dubai 2020, including signing contracts, creating jobs, issuing securities and other activities.

However, despite the creation in all emirates of the UAE of an advanced commercial, tourism and communal infrastructure focused on attracting businesses and the population of a cosmopolitan nature, the UAE's strategy pays great attention to the development of non-oil production and export infrastructure (in addition to the large-scale infrastructure for oil production and processing, which was created in the UAE before others, during the nationalization of the oil and gas industry and provided the basis for the development of the UAE economy, but is not a subject of consideration here).

The core of the strategy for transforming the UAE into a production, technological and innovative segment of the world economy was the creation of free economic zones (FEZ) of various directions. More than 45 free economic zones are developing in the UAE. In particular, the Abu Dhabi government was convinced of the need for a strategy for the development of the manufacturing industry as an important basis for balanced economic growth and

an increase in the contribution of the non-oil sectors to GDP. Therefore, a large-scale industrial infrastructure was created that could provide incentives to attract foreign investors to the UAE industry. In 2004, the Abu Dhabi government established the Economic Zones Corporation as the largest developer and operator of industrial FEZs for the entire UAE, which immediately invested over \$ 1 billion in infrastructure. The corporation prepares areas for industrial use, including the necessary infrastructure, starting with transport for the supply and dispatch of products to ports and airports, as well as engineering. The area of industrial zones developed by the corporation exceeded 48 million square km. they have attracted over 8 billion in investments from local and international companies. These zones provide first-class infrastructure and transport links, simplified company registration regimes, better housing conditions for workers, and tax incentives. The corporation has invested more than \$ 3 billion in the construction of the housing sector in these FEZs for managers and personnel of companies opening a business in the FEZ, which can accommodate hundreds of thousands of people (it is planned to accommodate up to more than 1 million employees). It must be said that construction in the UAE is carried out in accordance with environmentally advanced standards, which is in line with the "Green Growth" Strategy and "Green Agenda 2030" adopted at the state level in the UAE [14, p. thirty].

FEZs are developing in all emirates of the UAE. Here we give examples only for two of the 7 emirates - Abu Dhabi and Dubai. So, in Abu Dhabi, the most developed are such FEZs as Abu Dhabi Airport Free Zone (airport FEZ), Abu Dhabi Global Market (international financial center), Khalifa Industrial Zone (KIZAD), Twofour54 zone (for the development of the media industry), Zone Industrial City of Abudhabi (industrial city of Abu Dhabi). Projects of various new industrial SEZs are being developed, for example, in accordance with the development strategy "Vision of Abu Dhabi 2030" one of the new zones will be the Rahayel City FEZ, which will be commissioned in 2020: on an area of 12.3 sq. km. a global auto hub is being created, which will house the design and manufacture of vehicles for export, as well as the development of industries supplying components. SEZ the Industrial City of Abu Dhabi (ICAD), located near Abu Dhabi on an area of 40 sq. km., has many clusters set aside for both heavy and light industries (metallurgy, petrochemistry, plastics, building materials, pharmaceuticals, high-tech products, and others).

In Dubai, as in the UAE as a whole, the creation of a grandiose infrastructure of the modern economy



continues with the development of new sectors of the economy, including both manufacturing industries and technological clusters for the "knowledge economy" that the UAE is striving for. New infrastructure projects are being developed: the construction of roads, hotels, shopping and tourist centers, residential areas, in order to give a new impetus to economic development. A significant role in this is played by the policy of the current ruler of Dubai, Vice President and Chairman of the UAE Government since 2006, Sheikh Mohammed bin Rashid al-Maktoum, who opened a new phase of development by including these directions in the "Dubai Vision 2020" and then to the "Dubai Strategic Plan 2015" and in the "Industrial Strategy of Dubai 2030", one of the goals of which was the strategy of creating a "knowledge economy" in Dubai [16].

For this, the mechanism of creating free economic zones was also used both in the UAE as a whole and in Dubai, and in Dubai, one of such innovative projects was the establishment in 1999 of the SEZ - the Dubai Internet City techno park, where on an area of 30 million square meters ft. in one year, 118 information and communication technology (ICT) companies were attracted, including Microsoft, Oracle, IBM, Dell, Siemens, Sony Ericson. Their activities are necessary for the innovative development of the UAE according to. This cluster in the mid-2000s attracted more than 600 companies, also creating joint ventures with each other. The UAE prides itself on having the characteristics of a more integrated industrial complex than Silicon Valley in the United States.

In addition to this zone, a number of others have been created, such as Jebel Ali Free Zone (in the port area), Dubai Media City, Dubai Studio City, Dubai Health Care City (healthcare, medical tourism), Dubai Land, Dubai Humanitarian City, Dubai Knowledge Park, Dubai Biotech Research Park (biotechnology), Dubai Industrial City, Dubai World Trade Center, Dubai Silicon Oasis (research and development), Dubai Car & Automotive City Free Zone, Dubai Design District, Gold and Diamond Park (jewelry trade, jewelry craft) other.

An example of a unique, perhaps the only free economic zone in the world, is the Dubai Knowledge Park, which specializes in development, consulting and training programs in the field of human resource management, there are institutes and training centers, partners of which are well-known world brands in this sphere.

Another, research and development zone Dubai Silicon Oasis is intended for the development of high-tech industry in the field of utilities, construction, services, etc. It is wholly owned by the

government and provides 20,000 sq.m various premises for activities.

It is advisable to cite some indicators that illustrate the role of infrastructure in the development of the oil economy for the UAE. In 2016, a global infrastructure investment rating was prepared, assessing the markets of more than 40 countries in terms of attractiveness and opportunities for investors, companies participating in contracts, in which the UAE took 3rd place in the world (up from 4th place in 2012). As noted, the UAE has successfully relied on public-private partnership (PPP) mechanisms and maintained a course towards the implementation of new projects, especially in Dubai, despite the dramatic drop in world oil prices in 2014-2016. A high level of short-term risks (R) was assigned to the UAE due to the economy's attachment to oil exports (G means low, A - medium), but did not prevent it from taking a high place.

In the 2019 World Economic Forum's Global Competitiveness Ranking, the UAE was ranked 25th out of 141 countries. The contribution of the established industrial, commercial and transport infrastructure to the development of the UAE's oil economy can be judged by the indicators of foreign trade. According to the Federal Customs Authorities of the UAE, in 2018 the non-oil foreign trade turnover of the UAE amounted to 1628 billion dirhams, of which 592.4 billion fell on the turnover of FEZs and customs warehouses. In the total turnover of the UAE's non-oil trade, the volume of non-oil exports increased by 1.8%, reaching 212 billion dirhams, and the volume of re-exports in 2018 amounted to 478.4 billion, which confirms the importance of the UAE as an international commercial center [23].

At the same time, exports from the UAE FEZ increased from 173 billion dirhams (47 billion dollars) in 2017 to 225.6 billion dirhams (61.4 billion dollars) in 2018, accounting for about 46.2% of total exports and re-export to the UAE [24]. Among the commodity groups of the UAE's exports after oil and mineral fuels (121.59 billion dollars in 2018 and 31% of the UAE's exports) and the group of unspecified goods (97.12 billion dollars), the main ones are precious stones and metals (45 \$ 9 billion), electrical machinery and equipment, electronics (\$ 27.3 billion), machinery and equipment, including computers (\$ 17.6 billion), cars (\$ 12.9 billion), aluminum (\$ 6.38 billion), plastic and plastic components (\$ 5.49 billion), tobacco (\$ 4.53 billion), aviation technology (\$ 4.19 billion), perfumery, cosmetics (\$ 3.49 billion), iron and steel products (\$ 3.38 billion), garments (\$ 1.61 billion), rubber (\$ 1.41 billion), pharmaceuticals (\$ 1.35 billion), salt,



sulfur, earth, stone, gypsum, lime and cement (\$ 1.34 billion), edible fruits, nuts, citrus peel, melons (1.2 \$ billion), furniture, illuminated signs, prefabricated houses (\$ 948.97 million), dairy, eggs, honey, food (945.66 million dollars), footwear (918.59 million dollars). The UAE is one of the twenty countries - the world's largest exporters.

CONCLUSIONS

The strategy of creating a modern economic infrastructure for the modernization of the oil-export-dependent economy, which is being carried out in the UAE, can be considered as an embodiment in practice of Porter's theory of competitiveness, in which the factors of the country's competitiveness are not predetermined, but can be acquired, in no small measure with the help of active the role of the state in the economy. In modern conditions, the UAE has created and continues to build up an infrastructure that allows for productive, cost-effective investments in advanced economic activities.

In this regard, it can be stated that in the formation of the strengths of modernization of the economic system of the UAE, the creation of infrastructure played, in fact, a decisive role. This increase in the contribution of infrastructure to modernization in the UAE was achieved by clearly linking the priorities of infrastructure development with the most important areas of development and increasing the competitiveness of the UAE economy. At the same time, the infrastructure was almost the primary link (after, of course, financial resources for investment), in the chain of acquiring and increasing the factors of competitiveness of a given country in the global world economic system.

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SOCIAL MEDIA MARKETING - IMPACT OF STRATEGIES ON CONSUMERS' BUYING DECISION

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ABSTRACT

Social Media Marketing (SMM) is a form of internet marketing that utilizes social networking websites as a marketing tool. The goal of SMM is to produce content that users will share with their social network to build a brand exposure and broaden customer reach. It is a novel idea in gaining consumer base via., website traffic or attention through social media marketing sites. Social media marketing programs usually center on efforts to create content that attracts attention and encourages readers to share it with their social networks. This in turn moves in the form of electronic word of mouth refers any statement consumers share via internet. Social media such as Facebook, WhatsApp, YouTube, Pinterest and many others play a key role to promote the marketing of products. This paper aims to analyze the consumers attitude towards the trendy idea of marketing strategies and how far it attracts them by providing comfortable shopping namely., choices, convenience, and time saving for the buyers.

KEY WORDS: *Marketing, Social media, Consumer, decision-making.*

INTRODUCTION

Basically, social media marketing provides space for a company get direct feedback from customers and potential customers while making the company seem more sociable. The interactive parts of social media give customers opportunity to ask questions or voice complaints and feel they are being heard. This aspect of social media marketing is technically termed social customer relationship management. Social media has become a platform that is easily accessible to anyone with internet access. Increased communication for organizations spreads the brand awareness and often, to improve customer service. Again, social media serves as a relatively inexpensive platform for organizations to implement marketing campaigns. More number of people turn to respond social media marketing as it is a step-by-step process that carry out checklist-style every day. As a result, one can see plenty of webmasters posting a set number of status updates, following a certain number of new people and sharing a greater number of articles in daily basis. Social media claims that 70% of social media users are engaged in online shopping. Consumers easily get

what they want just by sitting in front of computer screen and accessing online websites.

The internet has created a platform for millions of computers at numerous sites in various countries, belonging to thousands of business, governments, research institutions, educational institutions and other organizations to link up with one another. It provides a very rich medium for information dissemination, exchange and collaborative interaction among individuals and computers without regards for geographical limitations of space. Though social media marketing has huge benefits for consumers and marketers, it has negative impacts on them. Due to its easy way of getting access to information, lack of monitoring and control, undoubtedly it fashions many risks and cyber-crimes. Social networking has become a common international trend which has spread across almost every corner of the world. The use of social media sites has exploded and evolved into an online platform where people create content, share it, bookmark it and network at a prodigious rate. Because of its ease of use, speed and reach, social media is fast changing the public discourse in society



and setting trends and agenda in topics that range from the environment and politics to technologies and the entertainment industry. Now it is fascinated to draw the attention of people for their shopping by using social media. The effect of social media on consumer buying behavior was analysis in this study.

REVIEW OF LITERATURE

Social media has advanced from simply providing a platform for individuals to stay in touch with their family and friends. Now it is a place where consumers can learn more about their favorite companies and the products they sell. Marketers and retailers are utilizing these sites as another way to reach consumers and provide a new way to shop. “Technology related developments such as the rise of powerful search engines, advanced mobile devices and interfaces, peer-to-peer communication vehicles, and online social networks have extended marketers’ ability to reach shoppers through new touch points” (Shankar et al. 2011, 30). Taylor, Strutton, and Thompson (2012), found however, that social media users’ message sharing behaviors are also attributed to the need for self-enhancement. When consumers perceive an online advertisement to be consistent with their identity, they are more likely to share the message with others because it is representative of who they are and what they like. Thus, “advertisers should consider the symbolic and self-expression properties of their online ads and match them to

targeted consumers’ self-concepts” (Taylor, Strutton, and Thompson 2012, 13). In other words, the marketing of a company needs to share similar characteristics with its target market’s interest. All of the findings from these studies show the significance of CGA and its impact on online marketing. Social Media Marketing is marketing using online communities, social networks, blog marketing and more. It’s the latest “buzz” in marketing. Global companies have recognized social media marketing as a potential marketing platform, utilized them with innovation to power important tool to influence the shopping decision of individuals. Internal stimuli (like hunger) or external stimuli (e.g., advertisement) make the consumer realize that there is a difference between their current state and their desired state (Kotler and Armstrong 2014). Social media has brought on ‘participatory culture’ where user network with other like-minded individuals to engage in an unending loop of sharing information monitoring updates, and requesting opinions and ratings on all kinds of products services and activities (Ashman et al., 2015). There are many devices used for communication purpose but cellphone has emerged as a sophisticated device in the recent times. Mobile phones are now a tool for entertainment as well as connectivity in terms of voice and data it is a radio transmitter and receiver. (G.Paulraj , S. Rameshkumar 2005).

RESULTS AND DISCUSSIONS

Table-1 Reasons for using Social Media for Shopping

Gender	Reasons for using Social Media for your purchase						Total	X ²	P value
	Discounts	Convenience	More choices	Low price	Avoid crowd	Saves time			
Male	18(18.2)	16(16.2)	24(24.2)	23(23.2)	6(6.1)	12(12.15)	99	2.917	.713
Female	13(16)	9(11.1)	23(28.4)	16(19.8)	9(11.1)	11(13.6)	81		

Source: Primary Data

Out of 180 consumers, 99 respondents are male. Out of them, 24.2 percent of the respondents use social media for their shopping since it offers more choices. Another 23.2 percent of the respondents opted social media for its lower price of the product. About 18.2 percent of the respondents were attracted by the social media for their purchase as they can avail discounts. Again, 16.2 percent of the respondents felt it is convenient for their purchase. It saves time claimed by 12.15 percent of the respondents. But, 6.1 percent of the respondents used it to avoid crowd. On the other hand, among the 81 female respondents, 28.4 percent of them used social media for their purchase as it has more choices. Another 19.8 percent of the respondents

chosen it for low price. About 16 percent of the respondents said that social media offers more discounts. Another 13.6 percent of the respondents used it to save time. Another 11.1 percent of the respondents used social media for avoiding crowd. However, 11.1 percent of the respondents felt it is convenient for their shopping. Hence it can be concluded that most of the respondents both male and female chosen social media for their shopping as it offers more choices. This is confirmed by the chi-square analysis, which accepts the null hypothesis at 5 percent level of significance of there is no significant difference between gender and reasons for using social media for purchase of product.

**Table-2 Opinion about the social media on buying through online**

Variables	Gender	Very Low	Low	Average	High	Very High	X ² Value	P Value
Price	Male	13(13.1)	43(43.4)	37(37.4)	4(4)	2(2)	4.231	0.376
	Female	15(18.5)	24(29.6)	36(44.4)	5(6.2)	1(1.2)		
Discounts	Male	4(4)	24(24.2)	46(46.5)	22(22.2)	3(3)	2.064	0.724
	Female	4(4.9)	23(28.4)	31(38.3)	18(22.2)	5(6.2)		
Choices	Male	3(3)	5(5)	35(35.4)	44(44.4)	12(12.1)	9.560	0.049
	Female	2(2.5)	11(13.6)	27(33.3)	23(28.4)	18(22.2)		
Quality	Male	3(3)	23(23.2)	45(45.5)	16(16.2)	12(12.1)	7.066	0.132
	Female	1(1.2)	9(11.1)	40(49.4)	22(27.2)	9(11.1)		
Design	Male	4(4)	14(14.1)	31(31.3)	35(35.4)	15(15.2)	1.203	0.878
	Female	2(2.5)	9(11.1)	25(30.9)	29(35.8)	16(19.8)		
Offers	Male	4(4)	16(16.2)	33(33.3)	31(31.3)	15(15.2)	2.316	0.678
	Female	4(4.9)	8(9.9)	28(34.6)	24(29.6)	17(21)		

Source: Primary Data

As far as price is concerned, male respondents felt it is low (43.4) in purchasing the product through social media, however female respondents found it is average (44.4). Both of them more less equally marked as low and average. This is confirmed by the chi-Square test, its p-value shows .376, which is higher than the threshold value of 0.05 at 5 percent level of significance implying that there is no significant difference between gender of the respondents and price of the product purchased through social media

For availing discounts, both male (46.5) and female (38.3) respondents revealed that social media shopping offers an average level of discount. Here too, the null hypothesis of there is no significant difference between gender and discounts offered is accepted since its p-value of 0.724 is higher than 0.05 indicating that there is no significant difference between gender and discounts offered in social media shopping.

In considering availability of choices, male respondents revealed that social media shopping provides the choices at high level (44.4), but female (33.3) claimed it as average. The null hypothesis of there is no significant difference between gender and choices is rejected since its p-value of 0.049 is lessor than 0.05 indicating that there is a difference

between gender and choices in social media shopping.

As for as quality of the product is concerned, male respondents (45.5) and female respondents (49.4) felt it is average in purchasing the product through social media. The chi-square test confirms it as its p-value shows 0.132, which is higher than the threshold value of 0.05 at 5 percent level of significance implying that there is no significant difference between gender of the respondents and choices of the product purchased through social media.

For availability design, both male (35.4) and female (35.8) respondents revealed that social media marketing offers more designs. Here too, the null hypothesis of there is no significant difference between gender and design is accepted since its p-value of 0.878 is higher than 0.05 indicating that there is no significant difference between gender and deign in social media shopping.

As far as offers are concerned, both male (33.3) and female (34.6) respondents revealed that social media marketing provides a limited offer to the consumers. Again, it is observed that there is no significant difference between gender and offers in social media shopping as depicts the chi-square where p-value (0.678) is greater than .05.

**Table -3 Perception about Social Media (VI- very important I- Important, N-Neutral NI- Not Important NTA- Not Important to All)**

S.no	Attributes	VI	I	N	NI	NTA	Total	Rank
1	Social media is one of important for a product advertising	265	332	99	12	5	713	I
2	It provides demographic divided of individuals who use that brand	75	264	252	24	3	618	IV
3	Comment on positive/negative is being portrayed in a social media post which is useful for buying decision.	160	248	210	22	5	645	II
4	It is possible to stay active and respond to comment according to the need of consumers.	145	256	183	36	8	628	III

Source: Primary Data

It's to be observed that the perception about social media was first rank given for the social media is one of the important for product advertising. The second rank given for Comment on positive/negative is being portrayed in a social media post which is

useful for buying decision. And the third rank given for it possible to stay active and respond to comment according to the need of consumers. And the last rank is it provides demographic divided of individuals who use that brand.

Table -4 Problems faced while using the social media

S.No	Problems	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Rank
1	Network Problem	46	144	141	28	20	379	IX
2	Delivery time is not clear	13	128	192	108	60	501	VI
3	Delay in delivery	10	110	198	144	65	527	IV
4	Payment confirmation missing	19	70	222	148	75	534	III
5	Hidden charges	10	106	198	120	105	539	I
6	Damaged goods	24	104	204	104	50	486	VIII
7	Inferior quality	14	106	249	96	30	495	VII
8	Sites have created any negative impact on your personal life	15	84	213	148	75	535	II
9	Reduce concentration and productivity is usual work	24	110	168	104	95	501	V

Source: Primary Data

While using social media the problems are faced by respondents are hidden charges. So it is ranked first. Another problem was sites have created any negative impact on your personal life. Payment confirmation missing as it is third rank. Delay in

delivery, which is fourth rank. Reduce concentration and productivity is usual work, which is fifth rank. Delivery time not clear is ranked given sixth. Inferior quality, Which is ranked seventh. Damaged goods , which is ranked eight. The last rank is



network problem. Hence, it can be concluded the majority respondents are ranked hidden charges.

Table -5 Satisfaction with the purchase through social media

S.No	Reasons	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Rank
1	More options available for multiple payment	295	352	81	8	1	737	I
2	It ensures privacy & secure	85	348	192	20	2	647	II
3	Customer friendly	80	288	219	34	2	623	IV
4	It is more reliable	80	308	192	38	4	622	V
5	It improves prestige value	75	204	231	56	9	575	VIII
6	Price is fair	125	236	201	54	2	618	VI
7	Quality of the product is good	125	236	198	46	7	612	VII
8	Delivery made in time	160	248	192	32	6	638	III

Source: Primary Data

Most of the respondents think that more options available for multiple payment so it is ranked first. Next majority of the respondents said it ensures privacy & secure so it is ranked second. Next respondents said that delivery made in time so it is ranked third. Then the respondents said customers friendly so it is fourth rank. Then the respondents said it is more reliable so it is fifth rank. Then the respondents are said purchasing price is fair so it is ranked sixth. The seventh ranked is quality of the product is good. And at last, using social media for purchasing will improved prestige value.

CONCLUSION

The paper shows that use of social media improved satisfaction for consumer during the initial stages of information search and alternative evaluation. Many respondents are reasons for choosing social media it has more choices. The study of describe the respondents are reasons for social media using it has low prices and more satisfaction. Consumer opinions on a continual instant basis by listening-in and participating in online conversations, and observing what people are discussing in blogs, forums and online communities. Vast information are freely available on social media. Finally the study shows that the use of social media improving consumer satisfaction in the purchase decision stage. Most of the consumer opinion on the product to buy with the help of social media is quality, it is more satisfying consumers. The study was able to discover diverse impacts of social media usage both positive and negative, which are a result of advancement in

modern technology. The respondent perception about social media is important for the product advertising. The study has explained the problems of consumers. That problem is hidden charges. The consumer main satisfaction is more options available for multiple payments. It is convenient for consumers.

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AESTHETIC FEATURES OF INTERNATIONAL RELATIONS AT YOUNG PEOPLE

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ANNOTATION

The article examines the spiritual and economic reforms of Uzbek youth in relation to interethnic relations. It explains that the development of aesthetic features of youth in the development of philosophical thinking is an important process. At the same time, the ethical principles and aesthetic features of the formation of interethnic relations in the youth are revealed. It promotes respect for national and universal values of young people in society.

KEYWORDS: *national values, interethnic relations, aesthetics, youth, nation, citizenship, ideology, politics, customs, traditions.*

DISCUSSION

In the 21st century, the processes of globalization are intensifying and the pace of life is growing rapidly. The social, economic and political events taking place in the world have a positive or negative impact on the life of mankind. That is why today the issues of national relations and interethnic harmony are among the most important issues in the era of global change. In addition, given the escalation of moral relations and its various forms of influence on the aesthetic thinking of young people, the development of national thinking among young people, the provision of interethnic relations is one of the main issues on the agenda. It is important to pay close attention to aesthetic features in this process.

As stated in the Basic Law of our country, the Republic of Uzbekistan ensures respect for the languages, customs and traditions of all nations and peoples living in its territory, and creates conditions for their development. The people of the country, made up of different nationalities and ethnic groups, are the only source of power. Uzbekistan, which brings together more than 130 different nationalities, sees their mutual solidarity as a key strategic and urgent task. Of course, it is necessary to mention the aesthetic features of young people, who make up more than 60% of the country's population.

At the current stage of world development, the issue of raising the aesthetic and moral culture of young people is one of the most pressing issues in the development of interethnic relations. Because the relationship between nations is interpreted differently

in different parts of the world. It is important to create new mechanisms to ensure interethnic harmony in our country, as well as in all regions, and to form national relations and values that will develop aesthetic qualities in the minds of young people who are the owners of our future. The normative documents adopted in this regard will serve to ensure a positive solution to the problem in the future.

The Decree of the President of the Republic of Uzbekistan on approval of the "Concept of state policy of the Republic of Uzbekistan in the field of interethnic relations" is aimed at further development of interethnic relations among members of society, formation of friendship, love for the motherland. The decree specifically mentions the issue of youth and states: "The population, especially young people, in the spirit of civic responsibility, patriotism and love for the motherland, respect for the historical past and traditions of the multinational people of Uzbekistan. upbringing "[1] is recognized as an important conceptual issue.

The regulatory framework, which has been updated in recent years, covers all areas of the country, and serves to ensure that young people in the country have a place in life and grow up harmoniously. One such legal document, the Concept of Youth of Uzbekistan - 2030, addresses the issues of working with young people and supporting their aspirations, focusing on the following issues: "Most young people are aware of the complex geopolitical and ideological processes taking place in the world.



Terrorism, religious extremism, fanaticism, bigotry, separatism, human trafficking, "mass culture", drug trafficking. It does not allow to unite the forces of society in the fight against various threats and dangers, such as "and to bring it to the level of social action" [2].

One of the main goals of national policy in any country is to bring up the young generation in a harmonious way, to ensure that young people, who are the main subjects of the common interests of society, have a place. This means that young people are not only the successors of the older generation, but also to pass on the values and traditions formed in society over the years to the next generation without any changes. Of course, it is important to develop positive qualities in the younger generation in the family, in educational institutions.

In today's world, the development of interethnic relations among young people is also important for the development of civil society. It should also be noted that the main direction of further development of developing Uzbekistan. This issue is also reflected in the reforms in this area in Uzbekistan.

In particular, the fifth direction of the "Action Strategy for the five priority areas of development of the Republic of Uzbekistan in 2017-2021" [3] is dedicated to the issues of interethnic harmony and religious tolerance. Confirms that the issue is in the focus of the government. Youth is an active social unit of Uzbek society. Therefore, in the framework of the national policy of the state, special attention is paid to the formation of positive interethnic relations and the harmonization of interethnic relations among young people. In this regard, the Concept "Youth of Uzbekistan - 2030" sets goals and objectives in the field of harmonization of youth and interethnic relations, the formation of patriotic feelings and the development of aesthetic features of national relations among young people. Respect for the traditions of different nations and peoples among young people, a respectful approach to it, and interaction with the value system allow to unite different stereotypes of interethnic harmony.

One of the most important ways to harmonize interethnic relations among young people is to unite them ideologically. Social integration also lays the foundation for the development of national relations. The various symbols and slogans recognized by the members of the society become powerful tools in combination with their attitudes and patriotic feelings at different times in history. This means that the formation of aesthetic features in the minds of young people in Uzbekistan will emerge as a means of determining social development. At the same time, it is important to ensure that young people's attitudes to values are interrelated with the overall development of civil society and the development opportunities of individuals. At the

same time, due to the development of civil society, there is a need to develop new mechanisms for the formation of a culture of interethnic relations and the harmonization of interethnic relations among young people. This is the task of civil society organizations, mainly public organizations, and in many ways helps young people to do socially important work.

A. Shaydullov, a Russian researcher, commented on the Russian experience of forming interethnic relations among young people in his scientific article: "In modern Russia, youth associations are successfully operating, their activities are aimed at creating a culture of interethnic relations. In particular, there is the All-Russian Youth Union (movement), which has more than 45 regional offices and branches in Russia. The main purpose of the organization is to establish and coordinate clubs and associations in higher education institutions to promote interethnic cooperation." [4]

The organization of various events (conferences, forums, roundtables) aimed at the development of national relations in our country is one of the main features of the development of interethnic relations among young people, the promotion of moral values and aesthetic culture.

The formation of national relations in the minds of young people is also important in ensuring security. After all, the process of building relations between nations today is connected with religious factors in a number of ways. As the President of the Republic of Uzbekistan Sh.M. Mirziyoyev noted, "... further development of mutual friendship and solidarity prevailing in our society is equal for all citizens, regardless of nationality, religion and creed. Ensuring rights will be at the center of our attention. The spread of extremist and radical ideas that provoke discord among them is absolutely not allowed in Uzbekistan." [5] This means that the threat of extremism, which is in the spotlight of the world today, serves to understand, differentiate and eliminate these radical ideas.

In practice, the activity of young people in the field of interethnic relations is one of the main issues we are researching. Promoting important aspects of interethnic harmony among young people, taking into account the aesthetic features of peace in the process of advocacy, will undoubtedly work.

The process of dialogue between the peoples of the world depends on the level of interethnic relations. In particular, the promotion of interethnic harmony among the younger generation is mentioned as a means of preventing national conflicts. Modern youth face the same contradictions as most people today as part of global development. At the same time, the younger generation is often caught up in new global challenges. The textbook on the idea of national independence analyzes this issue and puts forward the following ideas: "Young people belong to such a social group that they have a sharp



emotional cognition and are more sensitive to the disproportion of words and deeds. Some of the "injustices" that are common to adults can have a devastating effect on young people's minds and worldviews. That is why the national ideology, national pride and honor among young people are very important today. "[6] So, one of the main goals of the national idea is to educate people of different nationalities (youth) living in our country in the spirit of mutual understanding and to increase the possibility of applying aesthetic and moral principles as a key tool in this process.

It should be noted that the influence of aesthetic education, aesthetic thinking, which at different periods of historical development has formed a common ability in certain areas, can not be denied. This process is reflected in the general worldview of people, their attitude to social events. This diversity serves to reveal the aesthetic features of inter-ethnic relations.

When talking about the aesthetic features of interethnic relations in young people, it is necessary to pay attention to the issues of aesthetic features, aesthetic education. Fostering aesthetic taste in young people and increasing their ability to appreciate beauty will help them analyze the processes and events that take place in the environment. And that, in turn, has an impact on the social environment. Forming an aesthetic taste is a difficult task, because everyone thinks that their aesthetic views are correct in practice. Each person's aesthetic taste may not match the other person's aesthetic taste. Most importantly, it is important to analyze the aesthetic tastes of different people in different periods of history in relation to modern views. The development of aesthetic relationships in young people is reflected in the processes that involve their active actions.

People's aesthetic feelings influence the events and happenings in their lives. The ability to see, understand, analyze, and create beauty makes one's spiritual world more interesting and meaningful. It allows a person to enjoy life at the highest level. In other words, a person's attitude to what is happening is reflected in his aesthetic views.

Man is influenced not only by art, culture, spirituality, but also by the aesthetic aspects of reality. Work, social relations, work community, environment, behavior, life, nature and more. Through the understanding of truth and aesthetic thinking, a person recognizes, reinforces social ideals in his mind, and develops relationships with people.

Moral education today is unimaginable without aesthetic experience. It effectively influences the formation of moral ideas, experiences, research, beliefs and life ideals that arise as a result of social relations and are reflected in life.

This means that the development of interethnic relations among young people in Uzbek society is inextricably linked with aesthetic features.

According to him, the use of aesthetic concepts (humanity, national identity, perception, emotion, etc.) as the main tool in the education of young people provides a positive solution to national relations.

The Russian scientist AG Absalyamova addressed this issue in her dissertation for the degree of Doctor of Pedagogical Sciences. "The problem of the development of interethnic relations among young people, developed in the study, fully reveals the contribution of higher education institutions to the harmonization of interethnic relations in Russian society. One of the main tasks of the educational process in higher education is to develop a culture of interethnic relations among young people, which is an integral part of human culture "[7].

In any case, the evolutionary changes taking place in society have affected young people to one degree or another. Therefore, it is important to meet their spiritual, social and cultural needs. In such a situation, it is important to keep in mind the interethnic relations. As stated in the textbook on the idea of national independence: facilitates. On the contrary, a lack of vigilance and sensitivity in national relations, and a slight disregard for national principles, can also affect peace and stability. "[8]

It is known that the formation of the process of national self-awareness not only in Uzbekistan but also in the peoples of the world, as well as the complex relations associated with this process are gradually taking shape. This process imposes complex tasks on young people. In this situation, the role of aesthetic education of young people in our multinational country is very important. If the educational process is organized taking into account the characteristics of multinationality, interethnic relations can serve as a tool for sustainable development.

It is necessary to develop the ideas of interethnic tolerance in the formation and development of interethnic relations among young people today. If we look at the situation in the world, there are negative aspects of interethnic relations, such as intolerance, selfishness, and ambition. Also, intolerance from a national point of view, disregard for the feelings of other nations, low level of self-awareness, negative attitude towards other nations are causing serious controversy. In this case, the main task is to build a healthy dialogue between nations. We believe that the main way to achieve this goal is to form and develop aesthetic thinking, aesthetic worldview in young people.

Ensuring aesthetic qualities in ensuring interethnic relations at a young age is the key to overcoming crisis situations in interethnic relations. In other words, it is a tool for young people to develop the skills of living in peace. In our opinion, the aesthetic features of interethnic relations among young people are reflected in the following aspects:

-ability to feel, comprehend, perceive and appreciate the events and happenings in the environment;



- through the formation and education of aesthetic culture in young people;
- through the history of national relations inherited from past traditions and ancestors (in which the teaching of the scientific and practical heritage of our great ancestors plays a key role);
- with an aesthetic and emotional image of interethnic relations;
- Explaining the role of aesthetic laws in improving the scientific, creative and professional activities of young people;
- through the formation of their aesthetic ideals for young people;
- The goal of ensuring the positive aspects of interethnic relations can be achieved by understanding the essence of aesthetic concepts such as beauty, elegance, morality, and the right way of propaganda.

In short, it is important to strengthen interethnic relations in the minds of young people, to form their aesthetic views on reality on the basis of national values. Therefore, the development of the above aesthetic features in young people directly serves the spiritual development of the state and society.

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ADVANCED TECHNOLOGY OF SECONDARY RAW MATERIAL PROCESSING

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ABSTRACT

This article describes the features of different assortments of fabrics. The article describes the technology of processing of scraps from the textile industry, as well as the principles of operation of machines. Recommendations for improving the design of the machine in order to improve the length and mechanical performance of the fiber in the production of secondary fiber from raw materials. Product specifications from the improved machine are given.

KEYWORDS: *secondary fiber, waste fabric, feed roller, raw materials, dirt, thin fibers, brush drum, woolen cloth, linen, hemp.*

INTRODUCTION

The Decree of the President of the Republic of Uzbekistan on the Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021 and the State Program for implementation in the "Year of Active Entrepreneurship, Support of Innovative Ideas and Technologies" was adopted [1]. According to these documents, the widespread application of innovative developments in the sectors of the economy is shown.

Globally, population growth is leading to an increase in consumer textiles. It should be noted that the demand for non-woven raw materials is high in the population and some industries. At present, the production of non-woven raw materials is mainly due to low-grade fiber from cotton fiber separation enterprises. However, the pieces of waste fabric from the textile and garment industries are not fully recycled. However, if we take into account that 3-9% of fabrics used in the garment industry alone are recycled, the processing of this raw material is an urgent task today.

Fiber materials that are used, consumed, and not used for their intended purpose are referred to as secondary raw materials. Obsolete equipment is often used to recycle textile waste and obtain recovered fibers. Great cost-effectiveness can be achieved if modern machines are used to obtain quality yarns and fabrics from recycled fibers derived from used household textiles.

Clothes, household and technical fabrics made of natural fibers can be processed and recovered after their service. Fabric scraps are also produced in textile and clothing enterprises. Fibrous materials and products that are used and consumed and are not used for their intended purpose are called secondary raw materials. Up to 100,000 tons of secondary raw materials processed in the country can be collected for processing.

Clothing, household and technical fabrics made of natural fibers can increase the efficiency of secondary products by creating innovative technologies for the production of recycled fiber after its service.



With the introduction of compact technologies in the processing of secondary raw materials, it is important to sharply reduce the cost of production, improve the working conditions of workers and mechanize labor-intensive work.

The processing of textile waste involves several stages: disinfection, dusting, sorting, washing, dry cleaning, cutting and fiber separation [2].

New wastes of new fabrics, knitwear and felt products appear in the sewing shops when they are cut. The amount of cuts in garment factories is 9% and they are divided into six groups:

- Wool, blended and semi-wool;
- Yarn fabric;
- Flax and hemp;
- Artificial and synthetic;
- Mixed fibers:

Each gypyh is divided into different types according to its development, density and color during the sorting process. They are divided into woolen fabrics, fine woolen fabrics, coarse woolen fabrics, and fur coats.

Therefore, the study of the classification of fabrics processed from natural fibers, the analysis and improvement of their processing techniques, technology is an urgent task.

The technology for obtaining fiber from textile waste is shown in Figure 1. Today, the development of new technologies for obtaining fiber from by-products is one of the important areas of scientific research. Based on the study of the use of waste from the cotton and textile industries as a mixture of recycled fibers, it is possible to create a technology with great economic efficiency.

Recovered fibers are widely used to produce a wide range of household and technical fabrics. Recovered fiber is a valuable raw material for the textile industry. It is used "pure", ie without the addition of primary raw materials and in a mixed form.

MATERIALS AND METHODS

In the production of non-woven fabrics, various types of raw materials are used: linoleum floor, geotextile material, filters and shoe fabrics, technical mats, etc. materials are obtained.

Figure 1. Scheme of secondary fiber extraction technology.



In these materials, secondary reconstituted fibers make up 80-90%. Non-woven fabrics have good acoustic and mechanical properties.

In the classification of used natural fiber fabrics, their origin, the type of fiber in the composition is taken into account. Cotton fiber can be obtained into secondary raw materials and is divided into production and household waste.

They are divided into different classes and types according to their origin and properties in each industry.

Wastes from cotton fiber spinning and weaving are divided into six groups, several types and standards [3]. In sewing, scraps are separated as waste and used as raw material. They differ from each other in appearance, type of fiber, processing technology and use.

The technology of processing secondary raw materials began to be implemented at the beginning of the last century. In practice, the processing of secondary raw materials uses specially designed or existing equipment in enterprises. Special equipment is often used in the processing of textile waste, ie in the production of recovered fibers. A series of special equipment has been created abroad for the processing of secondary raw materials for research analysis.

Secondary fiber production technology varies from country to country, with more than 6-10 machines involved in most technology chains. The importance of these technologies is that the machining power of the machines and the geometric dimensions of the fiber to be obtained are important. Therefore, the structure of the fiber obtained from each technology is different. In terms of secondary fiber production, the Russian-made Sshch-850 machine is characterized by a very compact size.

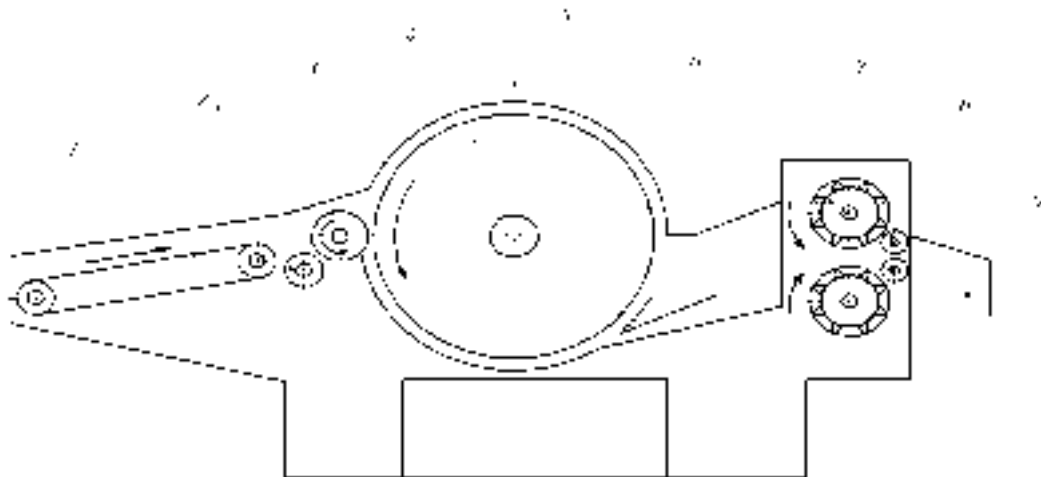
The working principle of secondary fiber extraction technology is as follows. Waste fabrics from the textile and clothing industry brought to the enterprise are first sorted by hand according to its



composition. The selected raw material is transferred to the cutting machine Sshch-850.

The principle of operation of the sshch-850 cutting machine is as follows, the raw material is partially disassembled by means of the saw drum 3 saw teeth under the compression roller 2 through the

supply belt 1. The raw material separated into pieces is separated into fibers as a result of the mechanical action of the pile drum 5 piles. Pieces of fabric that are inseparable (hanging) from the pile drum piles are separated by the impact of the knocking knife 6.



1- supply conveyor, 2- compression rollers, 3- supply cylinders, 4- supply tables, 5-pile drum, 6- separating blade, 7-net drum, 8- outgoing roller, 9- outlet pipe.

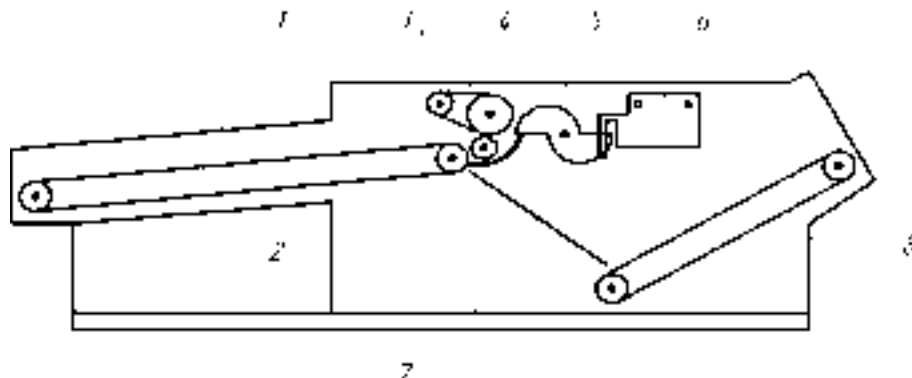
Figure 2. Sshch-850 cutting machine.

The fiber separated by the action of the pile drum sticks to the surface of the mesh drums 7 with a stream of air. The adhering fiber is removed using a roller 8 and discharged from the machine through the outlet pipe 9.

RMO-1 cutting machine, P-1 grinding machine, MARSh splitting machine, MSh1-2, MLU-800 and Polish AS-116, AS-12, AS-301 threshing machines, Ch-11-200Sh sweeping machines are among them.

In this technological process, the production of secondary fiber is carried out mainly in a series using 6 machines.

The selected raw material is first transferred to the RMO-1 cutting machine. The operation process of this RMO-1 cutting machine is as follows, the raw material is transferred to the raw material supply belt 1 by hand. The supply belt transfers the raw material to the compression roller 3 at the same time. The compression roller directs the raw material from the table 2 to the cutting blade 5. The blade side of the table is made in the form of a comb. The cutting knife cuts the raw material into small pieces and throws it on the sloping blinds 7. The transmission belt slides the raw material that slides over the 8 sloping blinds to the post-machine process.



1-supply belt, 2- table, 3- compression roller, 4- guide tape (straightener), 5- cutting knife, 6- fixed station, 7- blinds, 8-release tape.

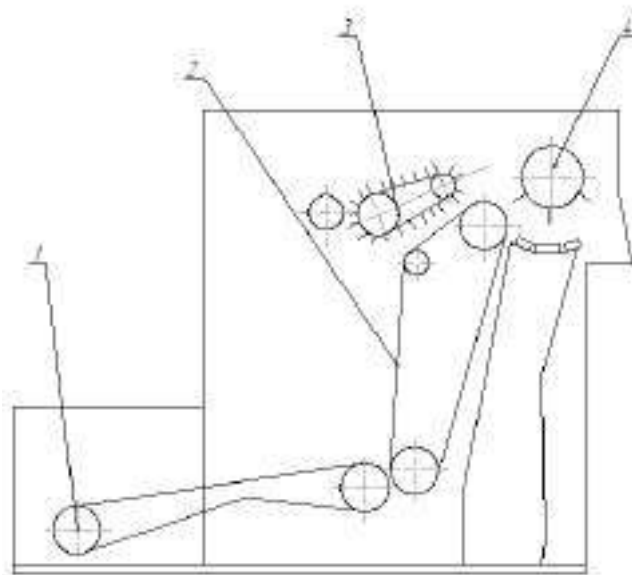
Figure 3. Constructive scheme of RMO-1 cutting machine.



Another function of the guide belt 4 in the machine is not only to direct the raw material, but also to form the raw material roller into the working chamber zone. The formation of the raw material roller in the working chamber ensures that the fabric is cut to the same size. The function of the stationary comb in the machine is to unload the pieces of fabric that are stuck to the cutting blade.

This cutting machine has its drawbacks and it is divided into two types. The first is constructive and energetic.

The fabric, which is cut into small pieces, is transferred to a P-1 sewing machine. The working principle of this machine is as follows. The raw material is passed to the leveling conveyor 3, which is hung on the teeth of the gear belt 2 over the drum belt 1. The process of grinding is carried out as a result of hitting the transferred pieces of fabric on the grate using the teeth of the pile drum 4. Under the pile drum is designed a grate grate. Fine fibers and dust particles are expelled from the machine by a stream of air through the grate.



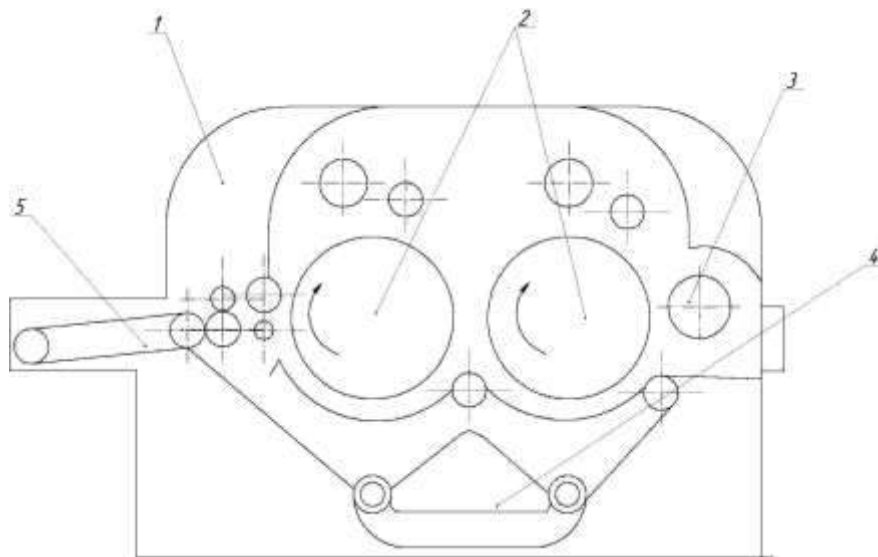
1- supply drum, 2- gear belt, 3- adjusting belt conveyor, 4- thrust pile drum.

Figure 4. P-1 threshing machine.

The importance of calibrating pieces of fabric hung on the teeth of a toothed belt is that it is important to transfer them evenly to the pile drum.

Delivery of excess product to a pile drum will result in poor performance of the grinding process.

The raw material is then sorted according to size using MARSh large chunks.

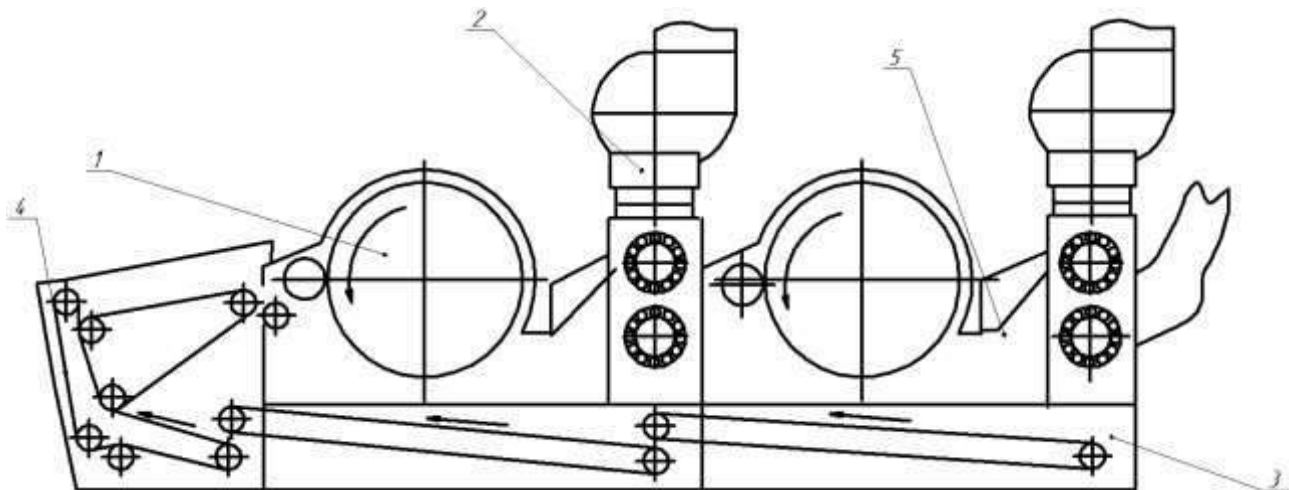


1- chamber, 2- main drums, 3- drums, 4- bunkers, 5- belt conveyors.

Figure 5. MARSH is a device that separates into large pieces.

MARSh is a device that breaks up large pieces and absorbs the fine fibers in the raw material through a condenser. Large pieces of fabric are

transferred to the MSh1-2 threshing machine. The MSh1-2 threshing machine separates the fabric into small pieces using a pile drum.



1- main drum, 2- pipe system, 3- belt conveyor, 4 -belt conveyor system, 5- chamber.

Figure 6. MSh1-2 threshing machine.

The following secondary fiber production technology is used in foreign countries. However, the disadvantage of this technology is that the use of six machines in the fiber extraction system increases the energy demand.

Improving secondary fiber extraction technology is an urgent task today. This requires the

compaction of the fiber extraction system and the design of improved machines [4].

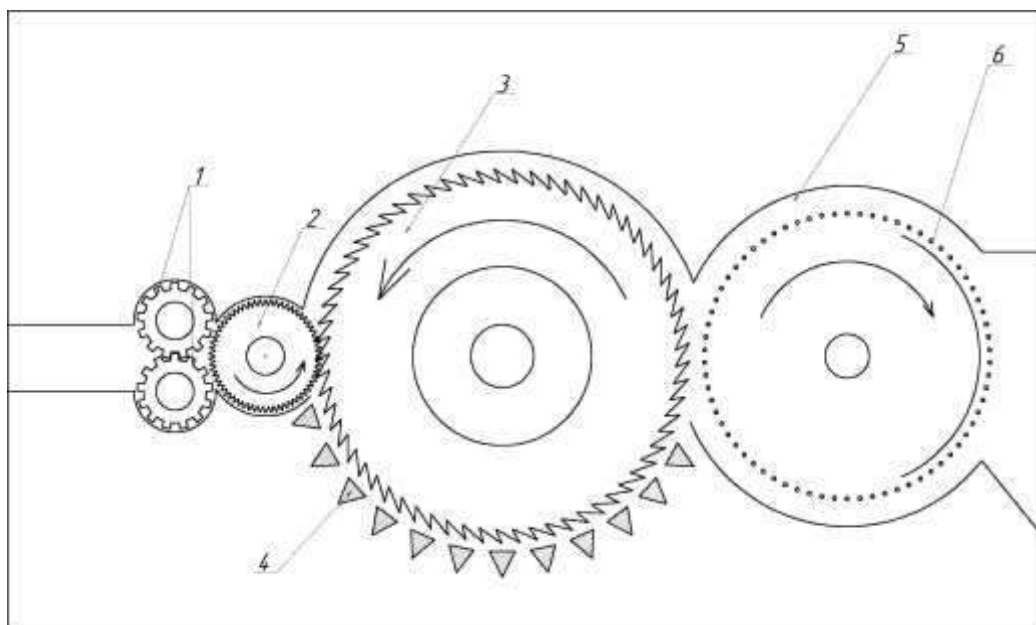
In order to save electricity and ensure the efficient implementation of the fiber extraction process, an improved machine for secondary fiber extraction is offered. The constructive view of the machine is shown in Figure 7 and it works as follows.

RESULTS AND DISCUSSION

The raw material is squeezed between two supply rollers 1 and delivered to the fine saw drum. The fine saw drum separates the raw material into pieces. The next saw from the crushed pieces of fabric is hung using 3 teeth. Condenser 5 is designed to remove the fiber separated by the saw teeth from

the saw teeth. The condenser collects the fiber and removes it from the machine.

Under the saw cylinder are placed three-sided columns. The function of the chimneys is based on turning the raw material (very small pieces of fabric) that the saw teeth hold onto the edge of the chisel into fiber.



1 -supply rollers, 2 -straight gear saw cylinder, 3- bevel gear saw cylinder, 4- crankshaft, 5- condenser, 6- diaphragm.

Figure 7. Advanced secondary fiber extraction machine

In the production of secondary fiber, the raw material contains 10-30% of fibers with a staple length of 21-30 mm.

The length of the fiber in the spinning mills of spinning mills is 21-22 mm.

According to the analysis, 94.5% of the waste generated by textile enterprises is used. The waste is recycled and 54.5% of spun fiber, 14.7% of household fiber, 17.9% of fiber is used for non-woven materials, 7.4% for other purposes, the rest is disposed of as non-recyclable waste.

Depending on the origin of fibrous waste is divided into production and household waste, cotton, wool, silk, hemp, chemical fiber waste, cotton ginning, textile, knitwear, garment industry waste, depending on the type of fiber. They are divided into different classes and types in each industry depending on their origin and properties.

In the production of yarn from cotton fiber, the spinning mill separates the return and waste. Their amount varies depending on the spinning system, the linear density of the yarn and the types of machines that make up the technological system.

Returns include the spinning, re-spinning and spinning machines' spinning methods, spinning and

spinning machine spinning rings, and the spindles and rings (fluff coils) that come out of the spinning machine. The amount of returns is usually 1.5 to 3.5%[5].

When cotton fiber is cleaned, it releases weeds, various contaminants, fluff, ie waste. Waste separated during spinning processes is divided into two types:

- recyclable waste. They are called visible wastes;
- reusable or invisible waste. These include dust, lost moisture, and very short fluff.

Visible waste is divided into two types: waste that can be spun and waste that cannot be spun.

Waste suitable for spinning includes knots, tarantulas, and supurindi fibers from enterprise workshops.

Non-spinning wastes include short fibers less than 14-15 mm in length, lint wrapped in rollers, and lint from filters.

Textile production wastes are divided into technologically unavoidable and unavoidable according to their origin, and they arise as a result of disruptions of the technological process in production.

The first group depends on the vibration, cleaning processes, machine design and readiness, the periodicity of the technological process and the breakage of the thread. Violations are caused by violations of the technological



regime and the rules of operation of machines.

Textile industry waste is divided into wool, cotton, hemp, linen, chemical and natural silk waste depending on the type of fiber. Textile industry wastes are mainly generated from fiber processing. They consist of spinning, non-spinning and invisible waste according to their properties. Wool waste is generated in wool washing, yarn production, weaving, decoration of woollen fabrics and knitwear, felt, fur, fur. Wool waste is constantly present in the wool and yarn production mix.

Cotton fiber waste is divided into cotton ginning, cotton spinning, sewing, hosiery, cotton wool processing waste. Fiber waste from ginneries is divided into three types. The fiber is separated as dead, regenerated (recovered) fiber and lint waste. Dead fiber contains only 3-10% fiber. Lint I class I nav 4.5; 6.0; 8.5% impurities, while type II may have 8.0 11.0: 15.0% impurities, respectively.

Textile enterprises generate 7% to 30% of cotton

fiber waste. Recycled spinning mills with low linear density generate the largest amount of waste, accounting for 80-90 percent of the total spinning waste.

Low-grade cotton fiber processing plants often produce non-spinning and non-returnable wastes, which account for 35-55% of the total volume. In specialized cotton spinning wastes, low-grade non-returnable wastes are separated.

In the waste classification, it is noted that all fiber wastes of the cotton industry are divided into six groups.

35% of the I-spinning group consists of wastes numbered 22-32 (michka, rings), 30% is numbered 14-16 (re-scraping).

60% of the spinning group II is waste No. 2 and 3 (knots and down for cleaning) and 30% is waste No. 10-12 (hat tarandi). 30% of the group is waste No. 4 (cleaning knots and fluff) and 25% is waste No. 7 and 8 (cleaning knots and fluff).[6].

Classification of waste from the textile industry

Table 1.

Waste guruhi	Waste type	Waste numbers	Area of application
I can spin	The rewinding thread is 333.3 flat and lower linear densities of the spindle rings	14, 14a, 15, 15a, 16, 16a, 18, 18a, 19, 19a, 20, 20a, 21, 21a, 22, 22a, 23, 23 a, 24, 24a, 25, 25a	When spinning in the snow system according to the type sorting (initial cleaning from defects and contaminants)
II Suitable for spinning	Knots and fluff in the cleaning	2, 2a, 3, 3a	In the production of non-woven fabrics and cotton wool
	The sum of colored fibers	6	
	Hat tarandisi	10, 10a, 11, 11a, 12, 12a,	
	Toza supurindi	33, 33a	
III past navli	Filter wool	1, 1a	Furniture is used in the production of downy cotton and plastics, in agriculture, construction, etc.
	The second stage is cleaning nodes and fluff	5	
	Dirty	34, 34a	
	Dirty	35, 35a	
	Shaved hair and down	51	
IV artuvbop	Weaving	52	In the production of nonwovens and other materials (after shredding)
	Twisted yarns	36, 36a, 37, 38	
V attorlik	The ends of the twisted thread	41, 41a, 50	Nets, sacks and in the manufacture of tapes
	The ends of the twisted thread	39,39a, 40,40a, 42, 42a, 43,43a, 44,44a, 45,45a, 46,46a, 47, 47a, 48.48a, 49.49a	

YesThe first clothes are triangular in shape. were divided into rectangular and trapezoidal surface shear groups and statistical data were obtained for each group. As you know. They are used for different purposes because the properties of the fibers reconstituted from the fibers containing natural fibers differ from the special properties of the fibers

obtained from the fragments containing artificial fibers. The test results are given in Table 2.1.

The results show that the surface area of triangular shapes is 28 cm², trapezoidal shapes are 54 cm², and rectangular shapes are 39.3 cm². The reconstituted fiber mixture was selected in this study as a square by mass.



The lengths of the regenerated fibers were determined after the first and second pinching machines and using the samples taken after the pinching machine.

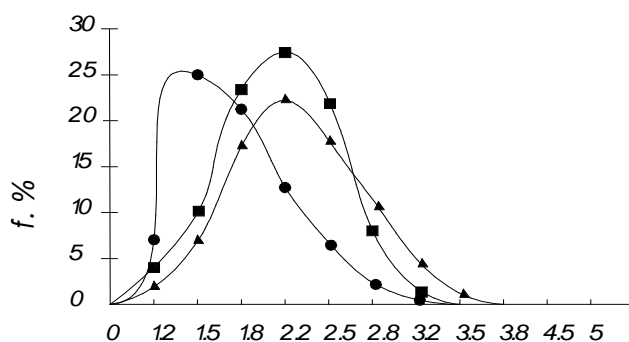
Distribution of slash shapes.
Table 2.

№	The shape of the cut	Indicators					
		The arithmetic mean		Mean square difference		Quadratic notexlik coefficient	
		mass g,	surface sm2	mass g	surface sm2	mass g,	surface sm2
1	Triangle	2.02	39.30	0.64	27.84	31.8	70.8
2	Rectangle	1.64	27.97	0.49	19.90	27.9	71.3
3	Trapezoid	1.64	54.0	1.01	30.6	0.61	56.7

According to the results of the experiments, graphs of distribution along the lengths of the fibers were drawn (Figures 1; 2). It should be noted that the fiber lengths in the third pinch machine are shorter than in the second pass of the pinch machine. If the modal length of the fibers in the first machine was 18 mm, in the second machine it was 16.5 mm, in the last machine it was 14.4 mm. The maximum length of the recovered single fibers was 31 mm on the first

spinning machine, 25 mm on the second machine, and 22 mm on the last spin. This means that the length of the goals, which are recovered from it when biting the stalks and clots, decreases along the stalks.

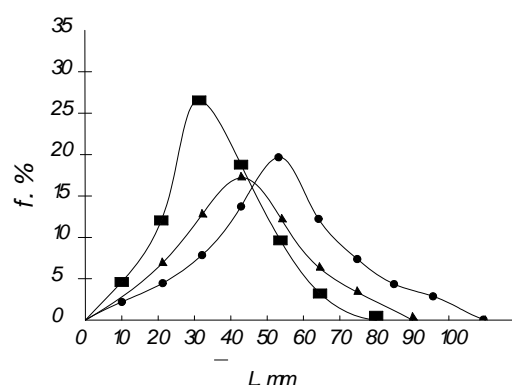
An increase in the amount of short fibers (up to 8 mm.) Was observed with the impermeability of the sawtooth tooth. If in the first machine the short fiber was 25%, in the second machine 38%, then in the last machine it was 48%.



(a)

■ - rectangle ▲ - triangle ● - trapezoid

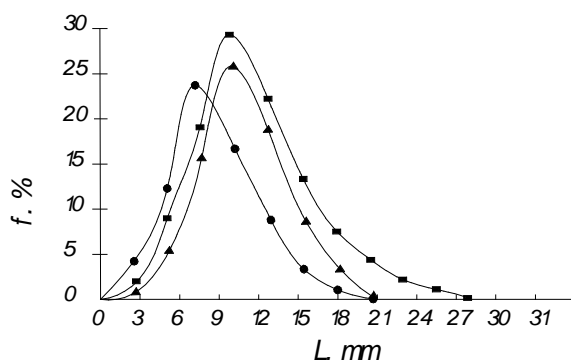
1-graph. Distribution of fragments of different shapes (a) and surface (b)



(b)

● - In the pinching machin.

2-graph. Length of individual fibers recovered from different transitions (L) distribution on



■ - in the pinch machine ▲ - In the pinching machine



Recovered fibers also contain untwisted residual yarns. Their amount is 35% in single-stage recovery and 15% in two-stage recovery.

CONCLUSION

When the fabric is spun only, up to 60% of the spun mass may be spun. Recovered fibers inevitably contain unbroken pieces of yarn - residual yarns. It should be noted that densely woven fabric garments are spun on a multi-drum machine, while fabrics spun from thick yarn are spun on a low-drum machine. The cotton wool is slightly crushed and the fibers recovered from it are longer. Pinching and canning machines are used for yarn fabrics and viscose clots. In order to study the properties of the

recovered fibers, the physical and geometrical properties of the first and second stages of spinning were studied by taking samples from the crushed mass and comb coming out of the spinning machine. The residual yarns were found to consist of single and banded yarn residues. It has also been confirmed that in many cases the yarn residues consist of thin yarn cuts. They are wide in length. According to the results of the study, the modal length of the fibers was reduced from 35 mm to 18 mm. This means that the fibers are mechanically damaged during the recovery process.

Given the efficiency and energy savings of this proposed machine, it should be noted that the use of this machine in industry can achieve great economic efficiency.

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FORMULATION AND EVALUATION OF CINNARAZINE NON EFFERVESCENT FLOATING TABLETS

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ABSTRACT

The objective of the present work is preparing non effervescent floating tablets. Different grades of HPMC polymers HPMC K4M, K15M & K100M were used as retarding polymers. The formulation blend was evaluated for various physicochemical properties and all the parameters were found to be within limits. The formulations F1-F12 were formulated and evaluated for various quality control parameters. All the formulations were passed the tests and the results were within limits. From the dissolution data it was evident that formulation F10 was found to be best with maximum % drug release of 97.13% and lag time of 12 hours.

KEYWORDS: *Cinnarizine, HPMCK4M, HPMCK15M, HPMCK100M & Floating tablets.*

INTRODUCTION

Out of all route of drug administration, oral route is the most convenient and commonly used route. [1] But this route has many problems such as an unpredictable gastric emptying rate, gastrointestinal transit time, and the existence of an absorption window in the upper small intestine for several drugs that way very difficult to prepare such a doses form which stay in the stomach for long period of time. For the solution of such problem, many approaches have been developed such as swelling system, bioadhesive system, floating system, high density approach. [2] Among from all approaches, name of floating system itself suggest its work like it will remain float or buoyant on stomach fluid providing desire retention and drug release.

Cinnarizine is the most widely used drug for management of motion sickness. [3] Chemically, cinnarizine is piperazine derivative which has short half-life (4 to 6 hrs) as well as small dose. [4] Related to pharmacokinetics of cinnarizine which provide anti-histaminic activity and calcium channel blocking

activity by higher affinity towards H1 and calcium channel receptor. But it suffers from incomplete and variable oral absorption which occurs mainly in the proximal small intestine thus it is a good candidate to be formulated as a floating dosage form. [5] Cinnarizine is weakly basic in nature and has a lower pka value that's why it remains in ionized form at stomach pH and thereby it provides higher solubility in stomach and it remains in un-ionized form at intestinal pH so it has lower solubility in intestine. [6]

The main objective of this research work is to formulate cinnarizine floating tablet as floating tablet remains for longer period of time in stomach which provides larger acidic environment and thereby it increases the solubility of cinnarizine and hence absorption of cinnarizine in small intestine increases.

MATERIALS AND METHODS

Materials

Cinnarizine, HPMC K4M, K15 K100, Magnesium stearate, Talc were gifted from Balaji Drugs, Surat.

**Methods****1. Preparation of Cinnarizine Floating Tablets**

The cinnarizine floating tablets were prepared by direct compression method using HPMC as matrix forming agent. The compositions of different formulations are given in Table 1. Cinnarizine, HPMC K4M K15M and HPMC K100 were mixed homogeneously using a pestle and mortar then mixed talc and magnesium stearate added as lubricant and glidant respectively. The granules were compressed to form a tablet using tablets compression machine.

2. Evaluation Parameters**a. Hardness Test**

The hardness of floating tablet was measured by Monsanto hardness tester. Hardness of tablet was measured in kg/cm² and it provides information about withstand ability during handling. [7]

b. Friability

The friability test was performed for all the formulated tablets using Roche Friabilator. Ten tablets were taken and their weight was determined (W₀) and then they were placed in a rotating drum. Then they were subjected to 100 revolutions. After completion of 100 revolutions or 4 min of time at 25 rpm, the tablets were again weighed (W). The percentage friability (f) was calculated by the formula:

$$F = \frac{W_0 - W}{W_0} \times 100$$

Where, W₀ = weight of the tablets before the test and W = weight of the tablet after the test.

Acceptance criteria: the friability value should be less than 1.0 %. [8]

c. Buoyancy/Floating Studies

Buoyancy lag time means time interval between introduction of tablet into the dissolution medium and its floatation on top of the dissolution medium. Floating time means it is the duration of time up to which tablets floats on the dissolution medium. Both floating lag time and floating time were carried out in 0.1N HCL in dissolution apparatus at 37±1°C. [9]

d. Drug Content

Drug content of floating tablet was done by random selection of five tablets from each formulation and then fine powder of five tablets was made. From this powder, equivalent to 50 mg of cinnarizine powder was weighed and make desire concentration in 0.1N HCL then samples were analysed in spectrophotometrically at 254 nm. [10]

e. In-vitro Dissolution Studies

Release of cinnarizine was determined using USP (XXI) six stage dissolution rate test apparatus I (Electrolab, Mumbai) at 75 rpm. The dissolution rate was studied using 900 ml of 0.1N HCL. The temperature was maintained at 37±0.5°C. Samples of 5 ml each were withdrawn at different time intervals for 12 hrs and the samples were replaced with fresh dissolution medium. The samples were filtered through a 0.45µ membrane filter and samples were suitably diluted and analyzed for cinnarizine content using double beam UV/Visible spectrophotometer (UV-1800 Shimadzu, Japan) at 254 nm. [11]

Table 1: Composition of Floating Tablets of Cinnarizine by Using Different Concentrations of Polymers

Formulation code	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
Cinnarizine (mg)	10	10	10	10	10	10	10	10	10	10	10	10
HPMC K4M (mg)	5	10	15	20	-	-	-	-	-	-	-	-
HPMC K15M (mg)	-	-	-	-	5	10	15	20	-	-	-	-
HPMCK100M (mg)	-	-	-	-	-	-	-	-	5	10	15	20
Accural (mg)	10	10	10	10	10	10	10	10	10	10	10	10
Magnesium Stearate (mg)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Talc (mg)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
MCC pH 102 (mg)	Q.S	Q.S	Q.S	Q.S	Q.S	Q.S	Q.S	Q.S	Q.S	Q.S	Q.S	Q.S
Total weight	100	100	100	100	100	100	100	100	100	100	100	100



RESULT AND DISCUSSION

Compatibility Studies

The principal peaks for cinnarizine were observed at wave numbers 3180, 3017, 2960, 2880 cm⁻¹. Principal peaks of drug were also present in drug and HPMC K4M physical mixture, The study indicated that there was no interaction between drug and polymers or excipients, which were shown in Figure 1 and 2.

Evaluation of Floating Tablet

1. Hardness Test

The measured hardness of tablets of each batch ranged between 4.44 to 4.56 kg/cm² as reported in Table 2. This ensures good handling characteristics of all batches.

2. Friability Test

The % friability was found to be in the range of 0.54% to 0.49% ensuring that the tablets are mechanically stable. The values of friability test are tabulated in Table 2.

3. Weight Variation Test

Twenty tablets were selected randomly from each batch and weighed individually using

electronic balance to check for weight variation. The values of weight variation are shown in Table 2.

4. In-vitro Buoyancy Studies

The randomly selected tablets from each formulation were kept in a 100ml beaker containing simulated gastric fluid pH 1.2. The time taken for the tablet to rise to the surface and float was taken as floating lag time. The overall floating time was calculated during the dissolution studies which were given in Table 2.

5. In-vitro Drug Release Study

The values of dissolution profile were shown in Table 3. The In-vitro drug release profile of cinnarizine floating tablet is shown in Figure 3. Amongst all the formulations, formulation F10 showed 97.32% drug release at 10 hours.

6. Drug Release Kinetic Studies

The drug release data of cinnarizine were fitted to Zero order, First order, and Higuchi model kinetics. The results were given in Table 4.

Table no 2: EVALUATIONS OF PHYSICAL PARAMETERS OF TABLETS:

Formulation Code	Weight variation (mg)	Thickness (mm)	Hardness (Kg/cm ²)	Friability (%)	Drug content (%)	Floating lag time (sec)	Floating buoyancy time (hrs)
F1	95	2.5	3.4	0.48	100.8	89	2
F2	101	3.3	3.25	0.38	97.8	112	3
F3	99	3.1	3.5		99.99	134	4
F4	106	2.5	3.1	0.40	101.33	104	5
F5	101	3.9	3.4	0.60	100.07	114	7
F6	103	2.2	3.5	0.43	95.6	145	>24
F7	106	3.1	3.2	0.45	98.9	87	>24
F8	105	3.19	2.9	0.52	100.2	134	>24
F9	103	3.2	3.2	0.45	99.8	176	>24
F10	101	3.1	3.5	0.40	101.33	104	10
F11	102	3.6	3.4	0.60	100.07	114	7
F12	98	3.2	3.5	0.43	95.6	145	>24

Table no: 3 Drug release data of Cinnarizine floating matrix tablets:

Time (hrs)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
0	0	0	0	0	0	0	0	0	0	0	0	0
0.5	6.87	9.09	4.87	8.48	6.98	8.03	5.41	5.09	3.36	4.92	4.04	5.97
1	11.98	15.65	9.82	11.32	12.37	14.37	9.83	11.12	6.89	8.54	9.37	11.87
2	18.8	28.94	16.1	16.47	22.42	26.56	16.14	19.87	11.52	16.18	13.74	19.84
3	24.87	34.52	29.74	24.89	32.05	34.92	27.35	33.45	29.36	38.27	21.71	25.1
4	36.12	48.21	30.56	32.11	44.51	44.52	30.73	45.62	35.2	44.96	28.27	32.26
5	45.35	56.45	48.29	41.82	51.25	54.85	45.24	58.73	49.65	51.02	39.16	38.58
6	51.21	67.43	57.1	56.01	63.33	67.21	51.27	62.64	61.1	68.63	46.18	43.83
7	57.31	70.32	65.25	67.35	69.24	70.05	57.83	70.43	68.99	72.65	57.98	54.39
8	62.19	76.52	70.32	76.25	70.01	74.16	62.19	76.21	72.58	79.45	62.39	65.25
9	68.55	82.46	76.25	80.24	76.45	79.61	67.02	81.26	79.56	83.85	69.87	71.29
10	71.24	85.27	79.23	85.16	84.29	82.83	72.01	84.75	82.95	87.52	75.96	75.41
11	76.21	91.75	84.56	92.98	87.25	84.21	79.58	87.89	83.25	91.89	78.33	79.64
12	81.27	93.28	86.74	94.38	90.03	89.74	82.41	92.38	89.36	97.13	82.76	82.33



CUMULATIVE (%) RELEASE Q	TIME (T)	ROOT (T)	LOG(%) RELEASE	LOG (T)	LOG (%) REMAIN
0	0	0			2.000
4.92	0.5	0.000	0.692	0.000	1.978
8.54	1	1.000	0.931	0.000	1.961
16.18	2	1.414	1.209	0.301	1.923
38.27	3	1.732	1.583	0.477	1.790
44.96	4	2.000	1.653	0.602	1.741
51.02	5	2.236	1.708	0.699	1.690
68.63	6	2.449	1.837	0.778	1.497
72.65	7	2.646	1.861	0.845	1.437
79.45	8	2.828	1.900	0.903	1.313
83.85	9	3.000	1.924	0.954	1.208
87.52	10	3.162	1.942	1.000	1.096
91.89	11	3.317	1.963	1.041	0.909
97.13	12	3.464	1.987	1.079	0.458

Table 4.: Release kinetics data for optimised formulation

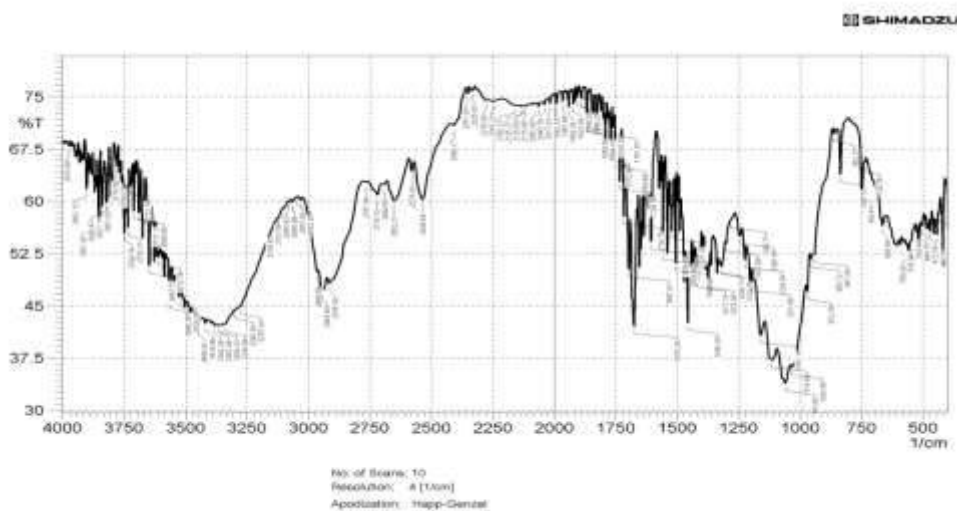


Fig 1 : FTIR spectrum of pure drug

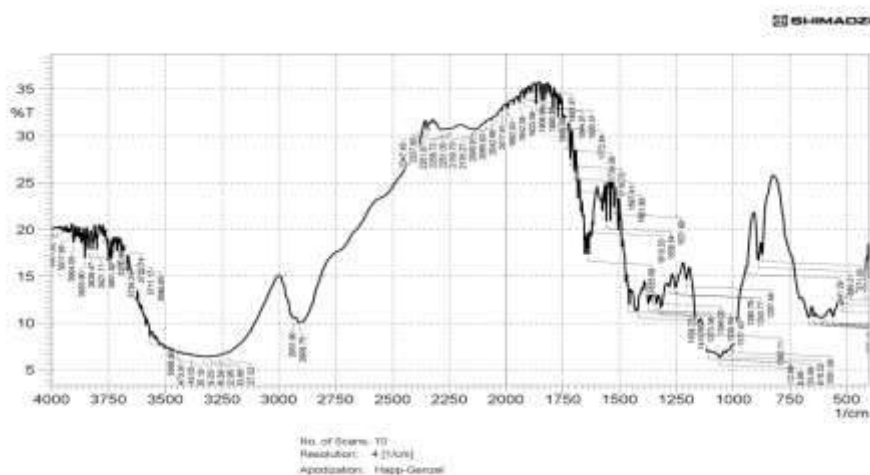


Fig 2 : FTIR spectrum of optimized formulation.



CONCLUSION

The object of the present work is preparing non effervescent floating tablets in controlled fashion. The gas generating agent Accural was added in different concentrations with varying amount of retardation polymers. Different grades of HPMC polymers HPMC K4M, K15M & K100M were used as retarding polymers. The formulation blend was evaluated for various physicochemical properties and all the parameters were found to be within limits. The formulations F1-F12 were formulated and evaluated for various quality control parameters. All the formulations were passed the tests and the results were within limits. From the dissolution data it was evident that formulation **F10** was found to be best with maximum % drug release of **97.13%** and floating time of 10 hours.

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EFFECT OF GENOMIC DAMAGE AND AGING ON THE FUNCTIONALITY OF STEM CELLS

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ABSTRACT

Disability of undeveloped cell work adds to the reformist decay of tissue upkeep and fix with maturing. The proof is mounting that age-subordinate aggregation of DNA harm in both foundational microorganisms and cells that include the stem cell microenvironment are incompletely liable for foundational microorganism brokenness with maturing. Here, we audit the effect of the different kinds of DNA harm that aggregate with growing on foundational microorganism usefulness, just as improving disease. We examine DNA-harm that prompted cell characteristics and extraneous modifications that impact these cycles and survey ongoing advances in understanding fundamental acclimations to DNA harm and how they influence undifferentiated organisms.

KEYWORDS: DNA , Organismal, HSCs

INTRODUCTION

Indeed, even the absolute most crude types of metazoan life depend on undeveloped cells' regenerative limits. In higher creatures, various tissues require a tissue-explicit stem and begetter cell pool for dynamic renewal during the life expectancy of the life form. Undeveloped cells have the exceptional limit of long haul self-recharging; however, this limit additionally conveys an inherent test: as undifferentiated organisms are the most extensive cells of the living being, the danger of gaining genomic harm is expanded. A few components can add to the gathering of DNA harm in undeveloped cells of the grown-up living being, including telomere shortening, DNA replication stress, and fixed frameworks' disappointment. Further, there is rising proof that aneuploidy adds to the collection of genome flimsiness in heredity prepared begetter cells during ageing^{1,2}. Components of DNA harm enlistment have just been assessed in numerous distributions (see, for instance, the ongoing survey by Zeman also, Cimprich³ on DNA replication stress). Our survey centers on the constant advances in the comprehension of the result of genome

insecurity in immature microorganisms. There are two particular results of DNA harm on the destiny of cells.

To start with, when DNA harm modifies quality capacity through transformations or chromosomal adjustments, the outcome can be variations in quality articulation and movement, for example, the dysregulation of qualities that control immature microorganism separation and self-reestablishment, the inactivation of tumor silencers, or the actuation of oncogenes^{4,5}. Such changes can prompt carcinogenic development, and tumorigenic adjustments in immature microorganisms can be incredibly risky, given these cells' high natural regenerative capacity. To forestall such modifications, DNA harm checkpoints developed as genuine tumor silencer systems to limit the development of harmed cells by instigating cell cycle capture, cell senescence, or apoptosis⁶. As a reaction, the DNA harm reaction could bargain undeveloped cell capacity and tissue reestablishment during maturing. DNA harm amassing all through life may underlie the declining regenerative capability of tissues and organs with developing. Curiously, the upkeep of immature microorganisms doesn't depend exclusively on DNA harm reactions: cell self-ruling. Late proof proposes



that foundational changes following DNA harm could modify the recovery of undeveloped cell pools, what's more, impact the clonal choice of subpopulations of foundational microorganisms with unmistakable functions^{7,8}. As information about the organismal results of DNA harm is just beginning to rise, we will give a perspective toward what's in store from incorporated and organismal investigations of reactions to genome insecurity.

CONSEQUENCES OF DNA DAMAGE CHECKPOINT ACTIVATION IN STEM CELLS

Cell DNA harm checkpoints decide the destiny of cells that convey genomic harm (Fig. 1). DNA sores trigger the enactment of flagging pathways, specifically of the protein kinase ATM (ataxia telangiectasia changed) and the related kinase ATR (ataxia telangiectasia and Rad3-related), which intervenes a course of post-translational alterations to chromatin and proteins enlisted to harmed DNA⁹. Stem cells lacking in both of these kinases are broken and frequently depleted rashly, bringing about early maturing phenotypes^{10–14}. The DNA harm checkpoint enactment yields incorporate cell cycle capture, apoptosis, and senescence — choices that ATM and ATR arrange with the fix. Even though ATM enactment is integral to the twofold strand break response¹⁵, and ATR initiation reacts essentially to replication stress and presentation of single-abandoned DNA¹⁶, in some cases, the kinases participate, either in an arrangement or parallel^{17–20}. Also, to these traditional checkpoint reactions, there is rising proof that DNA-harm instigated separation takes out harmed undeveloped cells by repressing self-recharging and driving the damaged amorphous cells into the brief begetter cell compartment^{8,11}. The choice whether to capture the cell cycle briefly, to permit time to fix the harm, or to go through apoptosis or separation to eliminate the harmed undeveloped cell from the living being, depends not just on the sort of damage experienced yet additionally on the cell type and the formative setting.

Furthermore, species contrasts may exist. Murine grown-up hematopoietic undeveloped cells (HSCs) react to low-level illumination by starting fix and staying calm, although this diminishes their long haul repopulating capacity and may expand the danger of tumorigenesis coming about because of gross chromosomal rearrangements²¹. An ongoing report announced that although illumination of grown-up murine HSCs actuated symmetric divisions to extend the immature microorganism limit in the present moment, long haul self-recharging of the HSCs was

decreased in the wake of ionizing radiation²². Tranquil human umbilical string platelets, conversely, will, in general, go through p53-subordinate apoptosis because of comparative dosages of ionizing radiation²³. Undifferentiated organism attributes because of DNA harm appear likewise to be significant for disease treatments. Disease undifferentiated organisms speak to a subpopulation of cells in a tumor that are more impervious to DNA harming specialists than the heft of the other tumor cells.

Regarding incessant myelocytic leukemia, the number of inhabitants in calm leukemia-starting cells is impervious to chemotherapy. It must be constrained into cycling to go through apoptosis, for instance, by the cancellation of the c-Myc-destabilizing ubiquitin ligase part Fbxw7 (ref. 24). Some immature microorganisms populaces, for example, HSCs, predominantly live in a noncycling state under homeostatic conditions. It is believed that the tranquil state shields immature microorganisms from the severe impacts of raised metabolic movement during the busy periods of the phone cycle and from mutational risks that can happen during DNA replication²⁵. The tranquility for HSC support is found in sequential transplantation tests, where HSCs exhaust after five to six rounds of transplantation. It was demonstrated that proliferative pressure prompts an aggregation of oxidative worry in relocated HSCs, limiting self-reestablishment capacity²⁶. Other undifferentiated organisms, for example, LGR5+ (leucine-rich continue containing G-protein coupled receptor 5) foundational microorganisms of the intestinal epithelium, multiply at a high rate. Quiet and profoundly cycling foundational microorganisms appear to utilize changed pathways to fix DNA harm. Though effectively cycling LGR5+ intestinal immature organisms can use the profoundly precise homologous recombination pathway, this pathway can't work in calm HSCs, as the homologous DNA arrangement opens up during the S period of the phone cycle. For example, quiet stem cells, HSCs, and hair follicle swell undifferentiated organisms, rather depend on nonhomologous end-joining (NHEJ) to quickly join the DNA ends²¹ — a measure inclined to blunder due to nearby end resection. Hence, even though tranquility ensures against replication-prompted harm, it might in a roundabout way lead to cancellations or movements emerging from blunder inclined fix.

Telomere harm and aneuploidy in undeveloped cell maturing

Unnecessarily short, uncapped, or useless telomeres are perceived as DNA harm by the checkpoint and fix apparatus and may result in misfortune or hereditary material movement.



Undifferentiated cells in grown-up tissues display some degree of telomerase movement yet, at the same time, show significant shortening of telomeres during aging. Heterozygous transformations in telomere restricting proteins — for instance, TIN2 (TERF1-associating atomic factor 2) or POT1 (assurance of telomeres 1) — lead to untimely deformities in tissue support and expanded paces of disease in humans. These deformities dominantly influence the hematopoietic framework, showing that, in people, HSCs are generally touchy to telomere topping imperfections brought about by transformations in telomere-restricting proteins.

Work in mouse undeveloped foundational microorganisms uncovered that short telomeres lead to flimsy differentiation, a phenotype that could add to aging-associated abandons in tissue support if comparable bothers happen in grown-up undifferentiated organisms. Supporting this thought, telomere shortening in grown-up intestinal undifferentiated organisms incites checked increments in genome precariousness and inadequate separation in mice coming up short on the tumor silencer p53. Notwithstanding, telomere-related harm at chromosome closes, increments in misfortunes, and chromosomes and chromosomal locales add to the collection of genome precariousness with age. Even though the essential components remain to a great extent unexplored, one contributing component might be age-related telomere shortening just as diminishes in the declaration of BUB1 (otherwise called BUB1B; BUB1 mitotic checkpoint serine/threonine kinase B), a center part of a mitotic checkpoint that guarantees appropriate connection of copied chromosomes to the mitotic axle before anaphase onset. Freak mice in which the decay of BubR1 is quickened create untimely maturing phenotypes inferable from early senescence of specific begetter cell populaces and loss of regenerative potential².

Moreover, transgenic mice with continued elevated levels of BubR1 all through life are less helpless to age-related aneuploidization and show a stamped augmentation in sound lifespan¹. An ongoing report demonstrating that acceptance of aneuploidy in foundational neural microorganisms prompts microcephaly underscores the significance of chromosomal honesty for tissue advancement and maintenance. Notwithstanding, the investigation of the function of euploidy-controlling qualities in maturing needs to be reached out to other aneuploidy models that have so far generally been utilized for momentary disease concentrates in early life.

CHANGES OF THE UNDEVELOPED CELL CONDITION WITH MATURING

How age-related collection of DNA harm influences the usefulness of undeveloped cells in tissue support has fundamentally been concentrated from an undeveloped cell inborn viewpoint. Nonetheless, the proof is mounting that changes in the immature microorganism microenvironment (or undifferentiated organism specialty) and the fundamental circulatory condition likewise add to the maturing related decrease in undifferentiated organism work. Critically, considers utilizing telomere-useless mice show that genotoxic stress incites cell-extrinsic changes that debilitate HSC capacity, and maturing related deserts in HSC separation, described by adequate concealment of lymphopoiesis. Given their exact part in the maturing corresponding undeveloped cell decrease, it is of enthusiasm to explore such undifferentiated cell outward maturing instruments in more considerable detail. One such muscle undeveloped cell weakening system includes the Delta-like 1 (DLL1)- ligand-Notch-receptor flagging pathway. Studies on mouse models give convincing proof that skeletal muscle maturing is portrayed by surrenders in DLL1-interceded actuation of peaceful satellite cells following injury, bringing about debilitated tissue repair-. These deformities were safeguarded by presentation to a youthful blood circulatory condition (see beneath). Likewise, Wnt flagging pathways assume a crucial part in directing undifferentiated cell destiny and self-reestablishment in various organ compartments and malignant growth. Studies on skeletal muscle maturing uncovered that maturing impacts muscle stem cell work by influencing Wnt flagging movement. In particular, concentrates in mice gave test proof to hyperactivation of authoritative Wnt motioning in mature skeletal muscle, which bothers tissue fix and homeostasis by adjusting immature microorganism destiny, bringing about expanded fibrosis. The investigation indicated that maturing related adjustments in the blood serum add to increments in sanctioned Wnt flagging activity. As opposed to the negative impacts of the authoritative Wnt flagging pathway, non-standard Wnt flagging intervened by Wnt7A was accounted for to upgrade muscle foundational microorganism self-reestablishment and muscle fiber regeneration. Strikingly, Wnt7A actuation enhanced brawny dystrophy; however, whether it can switch maturing related impedances in muscle recovery stays to be clarified. Specialty interceded systems were additionally found to debilitate regenerative muscle potential during growing. FGF2 articulation is raised continuously in old muscles, particularly in the immature microorganism niche. Expanded FGF2



motioning in the matured power debilitates Sproutyl-interceded upkeep of immature microorganism quiescence, consequently decreasing the pool of useful satellite cells with age.

Parabiosis tests — a careful strategy where two creatures are joined to set up a typical circulatory system — confirmed the idea that modifications in the phone outward framework add to impedances in foundational microorganism work during maturing. In tests where youthful and old mice were joined, cell-extraneous elements from the immature mice were found to reestablish neural and muscle undeveloped cell work in the aged mice. Just as underscoring the essential significance of the circulatory condition in age-related undeveloped cell breakdown, these tests gave a proof of the idea that it is conceivable to revive matured undifferentiated cells and the limit of tissue recovery. Recognizable proof of the critical cell-extraneous components included could give atomic passage focused on advancing treatments pointed toward improving human wellbeing and lifespan. Epigenetic alterations in light of DNA harm lead to the enlistment of p16Ink4a, a key marker of cell senescence. An age-related increment in p16Ink4a articulation has been seen in different tissue compartments of maturing mice. Erasure of p16Ink4a builds the pressure obstruction through substantial tissues by enacting the ubiquitin-proteasome framework (UPS). It was recommended that the raised significant continuance stretches out the conceptive life expectancy to permit germ cells to reestablish genome solidness before continuing posterity generation⁸⁰. It will be intriguing to investigate whether the intrinsic invulnerable reactions to DNA harm in immature mammalian microorganisms can affect separated tissues' perseverance.

CLONAL DRIFTS IN THE STEM CELL POOL AND SELECTION OF ABERRANT CLONES

The maturing of the undifferentiated organism compartment isn't constantly connected with a decline in undeveloped cell number. The quantity of immunophenotypically characterized immature microorganisms increments during maturing in the hematopoietic framework both in mice and humans. Nonetheless, the usefulness of undifferentiated organisms on a for each phone premise diminishes during aging. Besides, in the hematopoietic framework, the clonal arrangement of undeveloped cells can change during aging. Current information demonstrates that aging-associated clonal floats in the HSC compartment are initiated by cell-characteristic and cell-extraneous processes⁷. In the hematopoietic

framework, maturing is described by a reduction in lymphopoiesis and an expansion in myelopoiesis, and clonal floats in the synthesis of HSCs appear to add to these alterations. The pool of HSCs comprises of various subpopulations, including lymphoid-one-sided HSCs and myeloid-one-sided HSCs. During maturing, the populace of lymphoid-one-sided HSCs diminishes while the populace of myeloid-one-sided cells is kept up, even though the last populace shows diminished usefulness for every cell basis. The floats in the clonal organization of HSCs are thought to add to the decrease of resistant capacity and the expanded danger of myeloid leukemia with age. There is rising proof that floats in the clonal piece of immature microorganisms happen likewise in other organ frameworks, such as skeletal muscle. It is enticing to hypothesize that these floats in clonality at the foundational microorganism level lead to changes in different tissues' creation and capacity. Notwithstanding concentrates on foundational intestinal microorganisms (ISCs) have indicated that clonal floats in undifferentiated cell compartments can likewise be neutral. Likewise, these examinations uncovered proof that oncogenic transformations can prompt clonal determination of ISCs. The favorable clonal position of freak ISCs can be condition-subordinate; for instance, the determination of p53-insufficient ISCs over wild-type ISCs was discovered to be subject to the unique situation of constant inflammation. Studies on human colon sepulchers uncovered an increment in awkward chromosomal nature with expanding age, recommending that clonal choice may support freak immature microorganisms during aging. Atomic instruments that lead to the development of clonal floats in maturing undifferentiated organism compartments stay to be characterized. Curiously, it was indicated that the gathering of DNA harm prompts the development of clonal floats in HSCs by actuating a BATF (essential leucine zipper record factor, ATF-like)- subordinate separation checkpoint that outcomes in special consumption of lymphoid-one-sided HSCs (ref. 8). It is conceivable that DNA harm, which happens in HSCs during physiological maturing in humans, could likewise add to maturing related floats in clonality in human HSCs. In concurrence with this thought, patients with the myelodysplastic disorder (MDS) — a maturing related bone marrow disappointment condition described by expanded myelopoiesis and leukemia hazard — show telomere shortening and BATF enlistment in CD34+ HSCs (ref. 8). Clonal developments in undifferentiated organisms may not just add to tissue maturing yet in addition to the advancement of malignant growth. Work on HSCs uncovered that leukemia-starting cells (LICs) show an



expansion in clonal determination and a raised harmful expected when the proliferative rivalry of non-changed stem and begetter cells declines. These instruments could be crucial for the age-dependent increment in malignancies starting from stem and ancestor cells. A progression of ongoing investigations recognized an age-subordinate collection of transformations in human HSCs. Strikingly, these changes happen now and again in human leukemia. This information recommends that transformations at the undifferentiated cell level can happen before improving malady manifestations or out and out leukemia. A considerable lot of these maturing related, pre-leukemic changes in HSCs influence qualities engaged with the epigenome's control, supporting the idea that maturing chooses for changes at the epigenetic level that lead to the clonal extension of distorted undifferentiated organisms, hence making way for the advancement of malignancies. Instruments that improve the clonal determination of deviant immature microorganisms in maturing tissues stay to be depicted. Notwithstanding cell-characteristic cycles and loss of proliferative rivalry, it is conceivable that modifications in the fundamental blood circulatory condition add to this cycle. On the side of this presumption, the collection of DNA harm in maturing telomere-broken mice leads to untimely advancement of clonal floats of HSCs. Strangely, these changes were related with lost HSC quiescence, and loss of peacefulness was appeared to debilitate the capacity of HSCs by inciting adjustments in the DNA methylation landscape⁹

CONCLUSION

An assortment of components adds to the amassing of genomic harm in maturing immature microorganisms. The overall commitment of these wellsprings of genome shakiness to undeveloped human cell evolving stays to be portrayed. The downstream signals reacting to genomic harm decide the ramifications for undifferentiated organism usefulness; however, they remain deficiently comprehended. These signs work essentially to shield maturing tissues from disease arrangement. Be that as it may, similar pathways can advance tissue brokenness and determination of threatening clones during growing, including both cell-inborn and cell-outward changes that are enacted accordingly to genome harm. It will be of gigantic intrigue whether obstruction with the atomic DNA harm reaction frameworks could improve tissue work during maturing and moderate the age-subordinate increment in disease. On a basic level, such methodologies would intend to debilitate age-subordinate amassing of genomic harm and additionally ease poisonous maturing advancing

reactions to such genomic affronts. Trial proof demonstrates that the two processes work in mouse models of ageing¹. Future exploration will decide whether these methodologies can be meant to increment human wellbeing length during maturing.

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ADOPTION AND IMPROVEMENT OF THE CONSTITUTION OF THE REPUBLIC OF UZBEKISTAN

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ABSTRACT

The article covers the history of creation and adoption of the Constitution of the Republic of Uzbekistan. In addition, in accordance with the requirements of the time, amendments and additions that are being made to date to the Supreme Law are given with their grounds.

KEYWORDS: *the Constitution, the Declaration of principles of the independence, the President, the government, etc.*

INTRODUCTION

It is not a secret that the majority of the world consider a Constitution as the main document, which shows the internal organizational structure of the state, state power, democratic legal state, guarantees the legal rights and freedoms and legitimate interests of people and citizens in these states, and defines the state in the world community as a state, a nation as a nation.

Well, what does the Constitution itself mean, what kind of document is it?

The word "Constitution", is derived from Latin which means "structure". The Constitution is the main law of the state. It determines the structure of the state, the system of power and governing bodies, the order of their competence and formation, the electoral system, the rights and freedoms and duties of citizens, the interaction of society and the individual, as well as the judicial system and the interaction of the state and society.

In this regard, the following aspects should be considered as the most important legal document of the Constitution and the Supreme normative-legal act:

- The Constitution is the main law of the state;
- The Constitution has a high legal power;
- The Constitution is accepted in a separate procedure;
- The Constitution is the most important political document;
- The Constitution is the most important ideological document;

- The Constitution is the most important legal document;
- The Constitution forms the core of the national legal system;
- The Constitution is the basis of legal education in and legal culture[1].

The term "constitution" was known in ancient Rome (the law was called the Imperial Constitution). Amir Temur's Code was characterized by a constitutional document in civilization of the Eastern and Asian countries. Along with Sharia law it had a strong influence on the fate of the peoples of the Central Asian region. At the adoption of the Constitution of the Republic of Uzbekistan, was taken into account the national statehood experience of many centuries, in particular the historical traditions of today's Uzbekistan, ancient Khorezm and Sogdiana, Karakhanids, Khorezmshahs, Amir Temur and Temurids, Uzbek khanates, enlightened ancestors, the dream about an independent state, as well as the interests, national mentality, and aspirations of our view. We are undoubtedly convinced that the Constitution of Uzbekistan is the result of long-term dreams of our people towards independence. It is a complex of important historical chronicle of the creation of our Basic Law, and at the same time honorable historical chronicle. The first step in the adoption of the Constitution of the Independent Republic of Uzbekistan is explained by the fact that on October 21, 1989 it was granted the status of the Uzbek language as the state language[2].



ADOPTION OF THE CONSTITUTION

In the works of the first president of our country Islam Karimov "On the threshold of independence of Uzbekistan", "High spirituality is an indestructible force", it was specially mentioned that on the eve of independence there were sharp and uncompromising discussions on the issue of granting the status of the state language to the Uzbek language.

The president of our country Shavkat Mirziyoyev said, "It was not easy for us to adopt this law, which will decide the fate and future of our people in the most difficult conditions, when the regime in our country has not yet passed its verdict. The draft law was put on public discussion twice. I think that many of our compatriots remember very well what kind of heated discussions and disputes took place around him. Personally, I was also a direct witness and participant of these historical processes at that time. In the adoption of this important document, the political will of our self-sacrificing and patriotic intellectuals, the hard work of the general public and the first president of our country, the esteemed Islam Abdug'anievich Karimov, took a great place"[3].

Thus, first of all, the important legal rules enshrined in "The law on the state language" are now sealed in Article 4 of our main law as follows: "The state language of the Republic of Uzbekistan is Uzbek. The Republic of Uzbekistan ensures respect for the languages, customs and traditions of all nationalities and nationalities residing on its territory, creates conditions for their development" [2].

The second political, historical and legal step on the way to creating our main image is connected with the establishment of the presidential Institute and the structure of the commission for the preparation of new state symbols.

These very important and exciting events in the life of our country were discussed in the first session of the twelfth convocation of the Supreme Council in March 1990, also the post of President of the Republic of the former Union was introduced, the issue of state symbols was discussed and a special commission was formed in this regard. For the first time the idea of creating the first Constitution of independent Uzbekistan was put forward in this session.

Another important legal step towards the creation of the Constitution is related to the declaration of the Declaration of independence, and in Paragraph 8 of the Declaration of Independence, which was announced on June 20, 1990 by the Supreme Council of Uzbekistan, Uzbekistan enshrined the rule of establishing its own path of development, its own name and the state symbols (coat of arms, flag) [4]. In paragraph 12 of the declaration, it is noted that this document will be the

basis for the development of the new Constitution of the Republic.

It is worth noting that at that time the document of such content was first adopted in the territory of the former Union in Uzbekistan.

The fourth legal step towards the creation of the Constitution is the establishment of the Constitutional Commission.

By the decision of the Supreme Council on June 21, 1990, under the chairmanship of the first president of the Republic of Uzbekistan Islam Karimov, a constitutional commission consisting of 64 members of state figures, deputies, specialists was established and the draft constitution was prepared by this commission for more than 2 years.

The first president of our country headed directly to the preparation of the Constitutional Commission of the Republic of Uzbekistan a draft law that reflects the peculiarities of our country in a worthy manner, fully complies with international standards, takes into account the achievements of the world experience, democracy and constitutional legislation of the most developed countries.

President of the Republic of Uzbekistan Shavkat Mirziyoyev, in his speech at the solemn ceremony dedicated to the 24th anniversary of the adoption of the Constitution of the Republic of Uzbekistan, said: "As a deputy of the Supreme Council, I always remember with pride that I was directly involved in the process of creating and accepting our head of the Constitutional Commission. I remember how our Constitution came into being in its present form and content, as well as the heated debate and debate that has taken place in this complex process. Indeed, in the development of the draft of our Basic Law in the difficult period of the 90s, the leadership of this work by a large-scale, strategic-minded, far-sighted great political figure was of crucial importance as Islam Abduganievich"[5].

In this regard, it is permissible to pay special attention to the effective work of the president of our country Shavkat Mirziyoyev at the adoption of the Constitution. After all, during this period our compatriot also worked as a deputy of the Supreme Soviet of Uzbekistan, as a chairman of the mandate Commission of the Supreme Soviet of Uzbekistan, as a member of the Constitutional Commission of the Supreme Soviet of Uzbekistan and the 6th working group of the Constitutional Commission.

Another important legal step in the history of the adoption of our basic law is the proclamation of State independence. The speech of the first president of our country Islam Karimov at the extraordinary sixth session of the Supreme Council of the Republic of Uzbekistan on August 31, 1991, the twelfth call goes as: "From this point of view, I propose to declare September 1 as the day of Independence, the national holiday in our republic".



On August 31, 1991, the Supreme Council adopted a statement on the state independence of the Republic of Uzbekistan and noted in the statement that "From now on the territory of the Republic of Uzbekistan the Constitution and laws of the Republic are undoubtedly recognized as superior".

On the same day, the constitutional law "On the basis of State independence of the Republic of Uzbekistan" was adopted [6]. A number of important substances reflecting the core rules of the upcoming Constitution took place from it. In particular, in accordance with this law: "The Constitution of the Republic of Uzbekistan and its laws are superior in the Republic of Uzbekistan. The system of state agencies of the Republic of Uzbekistan will be built on the basis of the procedure for separation of power into legislative, executive and judicial power" (Article 5).

In fact, this Constitutional Law served as a Constitution until the adoption of our Basic Law.

The draft constitution was put on the general discussion on 26 September 1992 and 21 November of this year, in total two times. This open discussion took place in the spirit of political activity, creative upheaval of citizens from the end of September 1992 to the beginning of December. The Constitutional Commission received a letter with nearly 600 comments. More than 5 thousand proposals were submitted by our citizens. This ensured the populism of our Basic Law. The Constitution itself passed a broad public examination. The Constitutional Commission discussed the draft constitution for the last time on December 6, 1992. It is worth noting that the Constitutional Commission, referring to foreign constitutional experience, came from a holistic understanding of the role of the Basic Law. It took into account a number of advanced aspects of the constitutional experience of the developed countries of the world. The draft constitution passed a meticulous examination of such influential international organizations as the United Nations, the Council of security and cooperation in Europe and experts of democratic countries as the United States, Great Britain, Germany, France.

About 80 amendments, additions were proposed and clarifications were introduced to the draft constitution, which was introduced for discussion at the session of the Supreme Council. Deputies of the Supreme Council discussed the project article by article and introduced a number of other amendments to it. On December 8, 1992 the head of our state was adopted. Since that day, 8 December was declared a public holiday.

Thus, if a new sovereign state was decided on the world stage from the date of the declaration of independence of Uzbekistan, on the day of adoption of the first Constitution our state was born anew, a solid legal foundation was laid for our true independence. It is not surprising that such a high and

unbiased assessment is made in relation to our Basic Law. This can be explained by the following reasons:

- the main law of our country is a document that contains universal values tested in history, international standards;

- created and based on the historical experience of the most developed countries;

- the ideas and norms of our Constitution are based on the deep historical roots of the Uzbek people, which include centuries-old experience and spiritual values, the legal heritage of our nation. In fact, as time progresses, the laws also improve. During the past period, several changes have been made to our Constitution. To this day, 14 constitutional laws on Amendments to the Constitution have been adopted and 68 amendments to the norm rules.

REVIEW OF THE MAIN AMENDMENTS

The First Amendment to the Constitution of the Republic of Uzbekistan was made in accordance with the law "On amendments to Article 77 of the Constitution of the Republic of Uzbekistan" on December 28, 1993[7]. According to this, the legislative act of the Oliy Majlis amended the norm on the expression of the number of deputies chamber from 150 people, which clearly limits the amount. That is, the sentence "One hundred and twenty deputies" was changed to "deputies". This change is not indicated in the Constitution of the Republic of Uzbekistan, which is currently in circulation by representatives of the general public. In our opinion, it is also permissible to enter this modification.

The amendments and additions to our basic law, which were widely introduced in terms of the second and its scope, were implemented in accordance with the law "On amendments and additions to the Constitution of the Republic of Uzbekistan" dated 24 April 2003[8]. With this constitutional law, amendments and additions were introduced to 30 norms of our headscarf. These changes and additions became the legal basis for reforms, which are very important for our people, the system of state power. These changes were made in connection with the transition to a two-chamber parliament. In particular, the fifth section of the Constitution, dated to chapters XVIII–XX, XXIII, is connected with the issue of election of a two-chamber parliament in the future and changing the term of the constitutional authority of the president from five to seven years.

On January 27, 2002, a referendum was held on two important issues on the establishment of a two-chamber parliament and the amendment of the term of the constitutional authority of the president. As a result of the Referendum amendments and additions were introduced to the constitutional laws



"On the results of the referendum and the main printouts of the establishment of state power", "On the Senate of the Oliy Majlis of the Republic of Uzbekistan", "On the legislative power of the Oliy Majlis of the Republic of Uzbekistan". The Oliy Majlis has been amended to include two chambers – the Legislative chamber and the Senate, the Legislative chamber consisting of one hundred and twenty deputies, the Legislative chamber and the absolute and joint powers of the Senate, the term of office of the #President to be reduced to seven years.

The third amendment included in the Constitution was based on the law "On amendments to the articles of the Constitution of the Republic of Uzbekistan (Article 89, paragraph 15 of Article 93, part two of Article 102)" dated 11 April 2007. With this constitutional law, amendments have been introduced to the three norms of the Constitution, in particular, to ensure the coordinated activities and cooperation of the head of State and the bodies of state power, as well as to ensure the right of the president to dismiss the district and city governors who have violated the laws or have committed acts that The law "On amendments and additions to certain laws of the Republic of Uzbekistan in connection with the improvement of legislative acts on Elections" of December 25, 2008 was the legal basis for the fourth important amendments and additions included in our basic law[10]. By this constitutional law, a single norm has been amended. Article 77 of the constitution stipulates that the legislation consists of one hundred and fifty deputies elected in accordance with the law.

The Fifth Amendments and additions to the Constitution of the Republic of Uzbekistan were implemented in accordance with the law "On amendments and additions to certain articles of the Constitution of the Republic of Uzbekistan (articles 78, 80, 93, 96 and 98)" dated 18 April 2011 [11]. By this constitutional law, amendments and additions to the five norms of the Constitution were introduced. The main purpose of these amendments and additions is to ensure a more balanced distribution of powers between the president, legislative and executive authorities, and to foster the role and influence of political parties in society.

The law determines the order in which the Oliy Majlis hears and discusses the reports of the Prime Minister. The approval of presidential decrees on the appointment and dismissal of the prosecutor general's offices was removed from the absolute powers of the Senate. At the same time, from the Constitution, the norm on the leadership of the president in the executive power was issued. By law, the order of the president to appoint and dismiss the governors of the regions as well as the mayor of the city of Tashkent was established upon the proposal of the Prime Minister. In addition, it was determined that the candidate for Prime Minister will be invited

to the legislative chamber by a political party that has the highest number of Deputies in the election, or by several political parties that have won the highest number of Deputies. Also, an important amendment to Article 96 was introduced which states that, in the event that the president fails to fulfill his duties, his duties and powers shall be temporarily assigned to the chairman of the Senate, in such a case within three months the organization and conduct of the presidential election shall be carried out.

The Sixth Amendment to the Constitution was based on the law "On amendments to Article 90 of the Constitution of the Republic of Uzbekistan" dated December 12, 2011[12]. With this amendment, the term of office of the president of the Republic of Uzbekistan is reduced from seven to five years.

The Seventh Amendments and additions to the Constitution of the Republic of Uzbekistan dated 16 April 2014 "On amendments and additions to certain articles of the Constitution of the Republic of Uzbekistan (32, 78, 93, 98, 103 and articles 117)" was carried out on the basis of the law[13]. With this constitutional law, the six norms of the Constitution have changed. The norm on the procedure for the implementation of public control over the activities of state bodies was introduced, which was established by law. Thus, the implementation of parliamentary control was defined as a legislative act and a joint mandate of the Senate.

The Eighth Amendments and additions included in our Basic Law became the basis of the constitutional law "On amendments and additions to the Constitution of the Republic of Uzbekistan" dated April 6, 2017[14]. With this constitutional law, seven norms were amended and added. They are connected with the strengthening of the legal basis of the activities of the Supreme Council of judges and economic and administrative courts in order to ensure genuine independence of judicial power.

On May 31, 2017, the constitutional law "On the introduction of amendments to certain articles of the Constitution of the Republic of Uzbekistan (articles 80, 93, 108 and 109)" [15] became the basis of the ninth amendments included in our Constitution. With this law changed the four norms of the Constitution. Improvement of the system of Public Administration in the field of Ecology and environmental protection, as well as some changes and additions related to the strengthening of the independence of the Constitutional Court.

The Tenth Amendment introduced to the head office was the basis of the law "On elections to the District Councils of people's Deputies of the city of Tashkent" on August 29, 2017[16]. With this law, amendments and additions to the two norms of the Constitution were introduced. In particular, the appointment and dismissal of a governor to the districts of the city of Tashkent was determined by



the rule on entry into the authority of the mayor of Tashkent.

The Eleventh Amendment to the Constitution was the legal basis of the constitutional law "On amendments to certain legislative acts of the Republic of Uzbekistan in connection with the improvement of the election of the chairman (oqsakol) of the citizens' Assembly" on October 15, 2018[17]. By this law, only one norm was changed. In the self-governing bodies of the citizens' assemblies, the procedure for the election of the chairman (oqsakol) and not only the chairman (whitewash) and his advisers, but also only the chairman (oqsakol) for a period of two and a half years, was introduced. The twelfth amendments and additions included in our Basic Law became the basis of the law of February 18, 2019 "On amendments and additions to some legislative acts of the Republic of Uzbekistan in connection with the improvement of the activities of some state bodies in the field of security and defense"[18]. With this law, amendments have been introduced to two norms in the Constitution namely, the conversion of words related to the "National Security Service" into the "State Security Service".

The thirteenth amendments and additions included in our Constitution were the basis of the law of March 5, 2019 "On amendments and additions to some legislative acts of the Republic of Uzbekistan in connection with the democratization of the order of formation of the government and its responsibility"[19]. With this law, amendments and additions were introduced to the three provisions of the Constitution. According to them, the procedure for the approval and dismissal of members of the Cabinet of Ministers was introduced upon the proposal of the prime minister, which was introduced after the legislative approval of the court. The basis of the law "On amendments and additions to certain legislative acts of the Republic of Uzbekistan in connection with the improvement of legislative acts on Elections" of September 4, 2019, was introduced into the last, that is, the Fourteenth Amendments and additions[20]. According to it, in Article 117 of the Constitution, a change was introduced that the court found it incapable of circulation, that persons who are kept in places of deprivation of liberty by a judicial sentence for committing a serious and extremely grave crime should not participate in elections only, but in any other cases should not be allowed to directly or indirectly restrict.

CONCLUSION

As can be seen from the above as our country develops towards a democratic legal state, civil society, our main body, which is the legal ground on this path, will continue to improve. In this regard, it is worth noting that knowing the

Constitution and the history of its creation, understanding the essence and meaning of its improvement is an inalienable duty of every citizen of Uzbekistan. Undoubtedly, the Constitution is the passport of the state, it is a legal, social, political document that introduces the state into the world as a state, a nation as a nation.

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INTEGRATION OF MULTIPLE INTELLIGENCE THEORY IN THE TEACHING AND LEARNING OF MORAL EDUCATION IN MALAYSIA : A CRITICAL ANALYSIS

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ABSTRACT

The purpose of this study is to analyze the advantages and needs of integrating various intelligence theories in the process of teaching and learning Moral Education in a more practical way. Smart individuals become human capital for the economic and social development of the country. However, efforts to highlight or expose the various intelligence available to students are still not given much attention by teachers. Identifying various aspects of student intelligence is still a challenge for teachers who implement the teaching and facilitation process in the Moral Education classroom. Moral Education teachers face problems to help students reach their maximum potential because of the unique and varied learning needs of students. In this regard, the theory of multiple intelligences is thought to be able to be a theoretical framework to define, understand, develop and assess the various intelligences that students have. This study uses a qualitative approach with text analysis design and document review. Therefore, this paper is structured into three parts. The first part is a discussion of the Moral Education curriculum in Malaysia, and issues in teaching pedagogy. The second part is a discussion of the theory of multiple intelligences and the Flow theory that supports it and the third part is the integration of the theory of multiple intelligences in the Daily Teaching Plan for one unit of teaching in the Moral Education class. This paper demonstrates the importance of the concept of integrating the theory of multiple intelligences in the teaching and learning of Moral Education. This article also proposes a framework for the preparation of Daily Teaching Plan for a teaching unit as a guide for Moral Education teachers.

KEYWORDS : Moral Education, Multiple Intelligences, Teaching ,Learning, Integration , Flow Model



INTRODUCTION

The term intelligence generally refers to knowledge, creativity, wisdom, ability or mental ability to think (Ikhsan Othman & Rohizani Yakup, 2010). The mental ability to think includes the ability to analyze, *reasoning*, solve problems, be able to think about abstract elements, understand a concept or idea, be able to use language and be able to learn (Kamarudin Hj. Husin & Siti Hajar Hj. Abdul Aziz, 2011). It turns out that the term intelligence is synonymous with the cognitive ability or IQ possessed by the individual. According to Stenberg and Slater (1982), intelligence is an action or thought that is purposeful or adaptive. Intelligence is said to help us to *survive*, see information, acquire knowledge and skills, generate ideas to solve problems, communicate and help us make wise decisions (Jasmine, 1996).

The goal of the new Moral Education curriculum in the Secondary School Standard Curriculum (KSSM) is to enable all students to achieve the maximum potential of their intelligence (Nurulwahida & Ahmad Azman, 2014). According to Gardner (1983), intelligence is "the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community" (p.15). He suggested that individuals differ in their intellectual strengths and weaknesses, and that a teacher or coach, in order to optimize the teaching and learning environment, should be able to identify and teach these abilities using a variety of highly correlated activities (Gardner, 1999). In other words, teachers or coaches should teach with a variety of teaching strategies that encompass the abilities of different students, and providing many varied experiences is an important component to help students become morally educated individuals (KBSM Moral Education Syllabus, 2000).

MORAL EDUCATION IN MALAYSIA

Moral Education is a program that educates students to become moral or virtuous human beings by emphasizing the developmental aspects of moral thinking, moral feelings and moral behavior (Nadarajan & Ganesan, 2016). Moral education in secondary schools focuses on efforts to cultivate the spiritual strength and morality of students through the appreciation and practice of the noble values of Malaysian society found in the religions, traditions and customs of various races in Malaysia (KBSM Moral Education Syllabus, 2000). Thus, students can build a life guide that allows them to become human beings with high moral value. This allows them to be morally and socially responsible individuals for all decisions and

actions taken. Several key principles have been identified as a guide in producing a comprehensive human being in terms of physical, intellectual, emotional, spiritual and social (KBSM Moral Education Syllabus, 2000).

The Moral Education Program in Malaysia aims to produce people with noble values who have a positive character. Students should have a positive character consisting of the dimensions of thinking, reasoning, intelligence, feelings and moral actions (KBSM Form Four Moral Education Syllabus Description, 2004). All of these elements are necessary for the achievement of an individual's level of moral maturity. Clearly, morality cannot be assessed from the aspect of cognitive achievement alone. Morality should also involve the development of various intelligences that can be transformed through individual behavior (Nadarajan et al, 2020). Therefore, teaching that stimulates the growth of student intelligence is necessary to produce students who have feelings and moral sensitivity. The development of various intelligences that are able to touch the consciousness of the individual's conscience, can address the widespread social symptoms among students (Nadarajan et al, 2020).

The Moral Education Curriculum in Malaysia enables students to

1. Understand and appreciate the values needed to be virtuous.
2. Recognize and accept the importance of harmony between humans and the environment and strive towards maintaining it.
3. Enhance understanding and cooperation to maintain peace and harmony living in a democratic Malaysia.
4. Develop mature thinking based on moral and spiritual values in moral decision making and problem solving.
5. Have a commitment to practice moral behavior in a fair and altruistic manner in line with the noble values of Malaysian society.

In planning and implementing this curriculum, focus should be given to the development and mastery of thinking and learning skills to enable students to make decisions and solve problems rationally in facing the complex life challenges. The diversity of students' intelligence must be taken into account to strengthen and enrich their learning experience in an effort to form human beings who are sensitive to issues or problems that occur and are able to make predictions, anticipate consequences and handle them towards harmony and excellence in life (KBSM Moral Education Syllabus, 2000).



MORAL EDUCATION TEACHING AND LEARNING PROBLEMS

Implementing the theory of multiple intelligences in the teaching and facilitation process by Moral Education teachers has long been proposed by the Ministry of Education Malaysia (*KBSM Form Four Moral Education Syllabus Description*, 2004). However, its implementation in teaching and facilitation in the classroom is still a question mark. Studies in Malaysia showed that, teaching and facilitation in Moral Education classes still leads to traditional intelligence, namely language intelligence and logic-mathematical intelligence (Liau, Liau, Teoh & Liau, 2003; Ucak, Bag, & Usak, 2006). Thus, the teaching and learning process of Moral Education in the classroom becomes too exam-oriented teaching, giving priority to copying notes as well as teaching to pass the exam alone (Vishalache Balakrishnan, 2009; 2011). This is also true because the teaching process of Moral Education is now more to the role of teachers to transfer the 'know-how' knowledge and responsibility of teachers, begins and ends with the task of programming all the subject content to students (Abd. Shatar Che Abd. Rahman, 2009; Nadarajan Thambu, 2014).

In addition, many teachers chase time and rush to finish the Moral Education syllabus before the end-of-year examination (Nadarajan Thambu, 2014). They do not appreciate the diversity of students and do not plan their teaching according to all the intelligence or any specific area of intelligence available to their students. As a result, student involvement in the classroom is less encouraging. Pupils are not motivated and lazy to engage in the learning process. One-way and bland teaching of teachers makes it difficult for students to understand, remember and do not want to be actively involved such as giving ideas or opinions when teachers ask questions (Nadarajan Thambu, Noor Banu Mahadir Naidu, & Muhammad Atiullah Othman, 2018). Accordingly, the implementation of planned actions and taking into account the level of intelligence of individuals can increase motivation as well as give them the opportunity to show their unique aspects of intelligence through activities and assignments in the classroom.

In addition, students are also unable to apply everything they learn in the Moral Education classroom when faced with problems in real life (Vishalache Balakrishnan, 2011). Pupils often skip classes, skip school and engage in vandalism (Arsaythamby Veloo & Ng, 2014) because they are unable to master the language and logic-mathematical intelligence that is the target of assessment and evaluation in exams. In the context of Malaysia, the existence of various social problems such as burglary, murder, bullying and the spread of a

gangsterism culture, as well as hedonism involving students (Zainul Arifin Md. Isa, 2012) are also increasing. This scenario has caused the education authorities and parents have asked the school to review the effectiveness of the teaching and facilitation process of Moral Education (Elizabeth Jaya Joseph, 2012; Ibrahim Bajunid, 2012). Apparently, neglecting the various aspects of intelligence, leads to a waste of human resources or human capital that can generate the country's economy.

In conclusion, a teaching and facilitation strategy of Moral Education that integrates the theory of multiple intelligences is necessary for understanding and its application to polish the various intelligences of Moral Education students. In addition, the theory of multiple intelligences is also able to explore the strengths, abilities, tendencies and interests of students through activities carried out in the classroom (Yang, 2010). Mastery of various intelligences can equip the younger generation with the skills needed to compete in the job market, as well as be an enabler of overall economic development. Thus, the study of the empowerment of various intelligence theories in Moral Education is appropriate to expose students to the process of thinking, generating ideas and active involvement in learning (Gardner, 2006) as well as the mastery of various unique intelligence of a student through the process of teaching and facilitation.

MULTIPLE INTELLIGENCES THEORY

The theory of multiple intelligences was pioneered by Howard Gardner in 1983. According to Gardner (1983; 1999), in the context of education, schools focus only on linguistic intelligence and logic-mathematical intelligence. Schools fail to identify other abilities that students have; which is also an award that should be celebrated by all. He stated that students who have other abilities besides language and logic-mathematical intelligence, are not given attention because all this time human beings are familiar and seem to receive intelligence in the sense that it should be based on scores in IQ tests. According to Gardner (1983 ; 1999), is an overly narrow view and he has recommended nine forms of intelligence present in humans to explore the potential that exists in children and adults.

The theory of multiple intelligences has been widely applied in western countries and Europe (Ikhsan Othman & Rohizani Yakup, 2010). Based on this theory, each individual has at least eight intelligences namely verbal-linguistic intelligence, logical-mathematical intelligence, visual-spatial intelligence, kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence, and naturalist



intelligence. (Armstrong, 1994; Stanford, 2003). Gardner (2006), explains that each intelligence is separate and not interdependent with each other. Refer to Table 1.

Table 1: Howard Gardner's Multiple Intelligences

Multiple Intelligences	Description
Verbal-linguistic intelligence	Word-smart - ability to use words effectively, and to use abstract reasoning, symbolic thinking and conceptual patterning
Logical-mathematical intelligence	Number-smart - the capacity to use numbers effectively and to reason well
Musical intelligence	Music-smart - capacities such as the recognition of and use of rhythmic and tonal patterns and sensitivity to sounds from the environment, the human voice, and musical instruments
Spatial intelligence	Picture-smart - the ability to perceive the visual-spatial world accurately and to perform transformations based on those perceptions
Bodily-kinaesthetic intelligence	Body-smart - the ability to use the body to express emotion, to play a game, and to create a new product
Intrapersonal intelligence	Self-smart - self-knowledge and the ability to act adaptively on the basis of this knowledge
Interpersonal intelligence	People-smart - the ability to work cooperatively with others in a small group, as well as the ability to communicate verbally and nonverbally with other people
Naturalistic intelligence	Nature-smart - the ability to recognize patterns in nature and classify objects; the mastery of taxonomy; sensitivity to features of the natural world, and an understanding of different species

(Adapted from Gardner 1999; Gouws 2007)

According to Gardner (2006), each individual has eight intelligences but each intelligence is at a different level based on individual strengths and skills. All intelligence disclosed by Gardner can be developed through education, experience and environment (Armstrong, 1994; Campbell, Campbell & Dickenson, 1996). Clearly, Gardner's theory has provided a framework and hope for a transformation or change (*metamorphosis*) of education at all levels of learning. All intelligence is interrelated and one intelligence can be used to enhance the other intelligence. Personal background is an important factor in shaping knowledge, beliefs and skills in all intelligences (Kagan & Kagan, 1998).

FLOW THEORY

In this theory, Flow is a situation when a person becomes very 'immersed' in carrying out activities and skill levels appropriate to the challenges faced. Flow is an internal state in the form of pleasure that involves a person's positive experience, so that the person can control himself to stay focused while doing something. The next question in the field of positive psychology is, how to create a Flow? Flow

becomes attractive for positive psychology as it relates to performance, goal orientation, creativity, attention, and emotion. This concept is increasingly popular among researchers such as Ryan and Deci (2000), who are interested in the intrinsic flow of motivation

Seligman (2002), the father of positive psychology, in his book *Authentic Happiness: Using the New Positive Psychology to Realize Your Potential for Lasting Fulfillment*, explains that Flow is considered an important part of enhancing human experience to live a meaningful life, where we use our virtue and strength for 'something much greater'. While Flow described by Csikszentmihalyi (1998) is based on his many years of research that begins with the creative process. The model popularized by Csikszentmihalyi (1998) is known as the Flow Model (Figure 1). In this model there are eight different zones. The main parts that need to be considered here, as we have mentioned, can be seen in the graphic axis of the book by Csikszentmihalyi (1998) entitled *Finding Flow: The psychology of engagement with everyday life*.



FLOW MODEL



Flow conditions include a strong enough passion and interest to perform a task, leading to a pleasant experience, a person consciously and actively using all his abilities to fulfill the task. The balance that occurs between one's skills and task challenges is often seen as a prerequisite for creating Flow conditions. Bakker (2007) in his research on Flow, describes three characteristics of Flow. Arnold describes the three characteristics of Flow as follows: *absorption*, *enjoyment*, *intrinsic motivation*. Absorption is the ability to focus on what is being done. Enjoyment is comfort while on duty. *Intrinsic Motivation* is a driving factor or more commonly referred to as an internal drive. If a person experiences a Flow condition, the person feels able to complete a particular task.

Therefore, the concept of Flow theory (Csikszentmihalyi, 1990), must be understood before we understand the theory of intelligence and its relation to an activity in the process of teaching and facilitation in the classroom. According to Csikszentmihalyi (1990), Flow theory refers to the zone of pleasure and enjoyment that exists between boredom and anxiety based on the level of skill of the participant and the level of challenge of an assignment. For example, participants with low skill levels in challenging activities may feel anxious, while participants who are highly skilled in very simple tasks may experience boredom. Clearly, classroom activities provide opportunities for students to highlight their own areas of intelligence. Activities in this teaching and facilitation process help students to identify and use the various areas of intelligence they possess.

LITERATURE REVIEW

The eight senses of the individual function in a unique way within each individual. There are individuals who have a high level of intelligence in almost all nine senses and there are those who do not. Most humans are intermediate in some types of intelligence and less formed in one or two types of intelligence. Intelligence works together in complex ways. There is no intelligence that works alone. All intelligences interact and are related to each other (Jamal @ Nordin Yunus et al., 2011). Intelligence can be developed. Gardner (1983; 1999) states that each individual has the ability to develop all his intelligence with appropriate encouragement, enrichment and teaching.

Studies on the use of multiple intelligences have been conducted in various fields and subjects. Among them are Vincent, Ross and Al Williams (2002), have applied the theory of multiple intelligences in the field of International Business. Lewicki (2002), on the other hand, uses the theory of multiple intelligences in the field of musical theater, while Mitchell and Kernodle (2004), on the other hand, use the theory of multiple intelligences to teach tennis. Similarly, multiple intelligence theories are used in the teaching of mathematics (Gouws & Dicker, 2011), in the teaching of drama (Akyol, 2018; Guss, 2005), dance (Warburton, 2003) as well as integrated in technology of teaching. (McCoog, 2007).

Gouws (2007), in his study stated that the theory of multiple intelligences can create opportunities to develop students' ability to think independently, creatively, and critically. Students not only learn to solve problems, imagine new ideas or products, but also they are able to develop their own strengths. One key to simplifying the process of recognizing one's



own intelligence is through the teaching and facilitation experience that takes place in the classroom. Multiple intelligence theories can be applied by integrating all intelligence into daily lesson planning to be implemented practically.

In addition, Gunduz and Ozean (2016), have made a study on preschool children. The objective of their study was to investigate the effectiveness of the constructivism curriculum through storytelling methods on the achievement of various preschool children's intelligence. Studies conducted in mixed mode experimental design, showed that, story telling methods provide children with the opportunity to achieve the highest levels of achievement or intelligence in linguistic verbal intelligence, naturalistic abilities, visual-spatial abilities, and body-kinesthetic abilities. This proves that classroom activities such as storytelling activities can develop a variety of individual intelligence.

Multiple intelligence theories are also used to study the relationship of intelligence with individual career choices. Johnson and White (2002), conducted a survey study of 263 students of the Criminal Justice course on the relationship of career choice with their intelligence. Data analysis shows that Criminal Justice course students have intrapersonal intelligence (self smart). In addition, the results of the study also show that there is a significant difference between career choice and individual intelligence. However, according to Johnson and White (2002), this study has helped students to identify the strengths and weaknesses in the aspects of intelligence they possess.

Hopper and Hurry (2000), on the other hand, have studied the effectiveness and potential of various intelligence theories in the teaching and facilitation process of primary and secondary school teachers. Teachers are asked to provide various activities to students based on the theoretical framework of various intelligences. They also provide different activities for each intelligence, namely focusing on intelligence specific to a particular teaching as well as integrating multiple intelligences in all teaching topics. The results show that various intelligence theories increase awareness of the learning process among teachers. In addition, it has also increased emphasis on the individual learning process as well as stimulating active learning among teachers.

INTEGRATION OF VARIOUS INTELLIGENCE IN TEACHING

Each intelligence is different according to the student. Applying this theory as a framework in the teaching of Moral Education in the classroom is not an easy task, because educators need to be creative in their teaching. Subsequent discussions provide suggestions for the application of

multiple intelligences in teaching. Literature Review offer various strategies on how to apply various intelligence theories in the classroom, and how teachers can stimulate students' intelligence through teaching and learning activities.

Teachers can integrate multiple intelligence theories into each step of Moral Education teaching in the classroom. In the induction set section, (teaching about environmental values) for example, teachers can project words related to moral concepts through *power-point presentation*. Immanuel Kant (1964) words such as "*the death of dogma is the birth of morality*", can be displayed for discussion. The teacher can have question and answer session with the students and ask the students to explain the meaning of the words and their feelings towards the words. This discussion can uncover the attitudes and personalities of students about their morality, value system and awareness of harmony between humans and the environment. It can also polish their intrapersonal (*self smart*) intelligence.

In addition, in the teaching development section, activities such as video screenings can polish their naturalistic (*nature smart*) intelligence. For example, teachers can show videos while discussing environmental issues and the importance of forests to ecosystem balance. Videos about the richness of fauna and flora as well as the diversity of biodiversity in the Tropical Rainforest, can enhance the environment. Discussion and appreciation of the greenery of the environment can also apply the value of loving and appreciating the environment, in addition to applying the attitude that people need to have towards the treasures of nature. Awareness of the importance of forests to humans and their inhabitants is also a catalyst for naturalist intelligence.

In the meantime, activities such as role play and simulation can form interpersonal intelligence (*people smart*). Teachers can ask the class to form several groups. Each group can be asked to play a role and perform a simulation to show ways to preserve, conserve and maintain the balance of the ecosystem. Each member of the group can play a role as a teacher, counselor, forest management officer, social worker, NGO member and religious figure, to show ways to preserve and conserve the forest from the point of view of the character or figure 'played' by them. The forest conservation strategy put forward by each figure is able to highlight their interpersonal intelligence.

In addition, activities such as acting and forum theater can polish their kinesthetic intelligence (*bodily smart*). Educators can provide a situation that has a conflict or moral dilemma for students to



act out. Teachers can provide the following situations:

“The forest area behind your house will be developed by some residents to be used as an agricultural area. This action was stopped by a group of members from the Nature Lovers Organization who went on strike while carrying banners. You as one of the residents are asked to give an opinion to defend the forest area from being destroyed.

At the same time, some residents are trying to defend their claim that forests should be destroyed for the sake of agriculture. In that dialogue you need to insert the reason and rationale of your claim to preserve the forest. Act out the situation”.

The ability of individuals to deliver messages through acting activities or forum theater can highlight their kinesthetic intelligence (*bodily smart*). Meanwhile, music intelligence (*music smart*), can be applied through the activity of creating song lyrics and singing activities. Students can be asked to create song lyrics related to environmental issues and sing the song solo or in groups. Students can also be given freedom of choice of words to sing. While activities such as completing an essay or mind map on the "Global Warming Phenomenon" can generate Verbal-linguistic (*word smart*) intelligence .

DAILY LESSON PLAN

It is the responsibility of educators to nurture students and help them develop their own intelligence. Each intelligence has the potential of every student and if lesson planning is designed to challenge different intelligences, students will be exposed to more than one type of learning, which increases the likelihood of successful achievement of desired outcomes. Lesson planning should include activities to combine as many different intelligences as possible. Educators need to plan a Daily Lesson Plan for each lesson they deliver. In planning lessons to incorporate multiple intelligences, educators can use the means or concepts as shown in Figure 2.

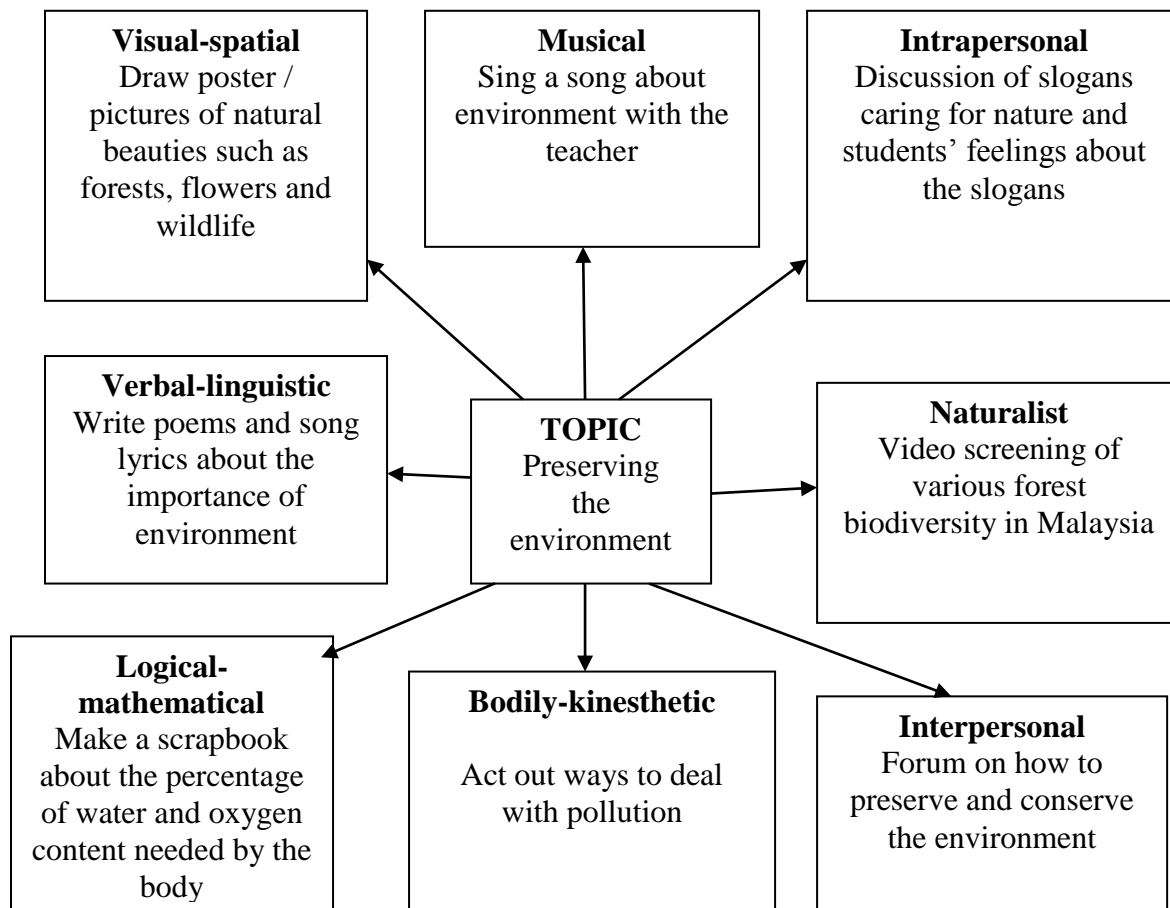


Figure 2: Incorporate Multiple Intelligences in Lesson Plan



CONCLUSION

One of the objectives of the Malaysian Education Development Plan 2013-2025 is to produce Malaysians who appreciate values, in addition to the application of imagination, talent, appreciation, creativity and innovation in work. This effort can be realized by integrating various intelligence aspects in the teaching and learning process of Moral Education in Schools. The wave of transformation of national education requires teachers and educational institutions to produce individuals who have cognitive skills such as application, reasoning and various intelligences, as these elements influence student behavior in facing the challenges of globalization and in preparation for the needs of the 21st century.

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A STUDY ON CONSUMER'S SATISFACTION TOWARDS ONLINE SHOPPING IN COIMBATORE CITY

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ABSTRACT

This study is fully focused on consumer's satisfaction towards online shopping. Online shopping is the utilisation of the technology for promoting marketing activities and selling products. One can buy any products through online with most affordable price. On the basis of this study it is found that consumers get satisfied with variety of products provided in online shops and they feel it is convenient to do online shopping with time saving and door step delivery because of fast moving world there is no much time for the consumers to do traditional shopping. The only thing is to be improved in online shopping is need of credibility for the risk, problems in credit or debit card payments and also guarantee for the products purchased by the consumers in online shopping because the products may have defects so it is needed. These are some of the finding from this study online shops can take into knowledge to avoid these kind of problems so that the online business will run in successful manner and consumers will get satisfied and do online shopping regularly.

KEYWORDS: *Consumers perception and satisfaction.*

INTRODUCTION

Online shopping is web based shopping type of electronic trade which permits customers to straight forwardly purchase merchandise or administrations from a dealer over the Internet utilizing an internet browser. Customers discover a result of enthusiasm by visiting the site of the retailer straightforwardly or via looking among elective sellers utilizing a shopping web search tool, which shows a similar item's accessibility and valuing at various e-retailers. Consumer perception means the expectation towards what they need and satisfaction refers to the level of utilization of the product consumer use.

STATEMENT OF THE PROBLEM

There are many problems in online shopping as compared to the traditional one. So all consumers are not become the online shopper. Thefts in giving the bank details (debit or credit card) and personal details of the consumers, improper delivery of placed order

and complicated return cum replacement policies of the online shops become the major disinclination for consumers to do online shopping. To overcome these problems this study will help by knowing the consumers satisfaction towards shopping through online.

SCOPE OF THE STUDY

From this study, online shops can get knowledge about what factors influence consumer's perception and their satisfaction towards online shopping. The study helps to know about the opinion of the consumers about online shopping. It helps the online shops to carry out their business successfully in online by understanding consumer's perception, taste, preference and satisfaction towards online shopping and through this consumer's will get benefit by doing purchases in online shops.

**OBJECTIVES OF THE STUDY**

- To identify the factors influencing the consumer's to buy in online.
- To understand the various problems faced by the consumer's in online shopping.
- To identify the consumer's perception in online shopping.
- To examine the consumer's satisfaction in online shopping.

LIMITATIONS OF THE STUDY

- The study is confined to Coimbatore city. Hence the finding and suggestions are applicable only to Coimbatore.
- The data collected for the research is fully on primary data given by the respondents.
- The accuracy depends upon the respondent's information.
- The sample size is limited to 150 respondents due to the limitation of the time.

REVIEW OF LITERATURE

Dr. B. Veerraju, (March 2019), in this study, it was found in the investigation that there was no huge contrast among age and web based shopping. It was additionally discovered that there is no noteworthy contrast among pay and recurrence of internet shopping. It was finished up from the examination that 65% respondents are happy with internet shopping.

Muruganatham S, Nandhini S, Nivetha B and Nandhini A, (2017), in their study, the outcome presumed that fate of e-tailors in India particularly in urban areas looking extremely brilliant. Web based shopping offering best value, great items and totally simple shopping experience for our clients. The achievement of any e-tailor organization in India is relying on its popularity. Online customers hope to envision reasonable arrangements online in the midst of free or appallingly low value shipping. Purchasers are searching for trust, security and more extensive decision all through web based shopping.

RESEARCH METHODOLOGY

The research design used for the study is descriptive. Descriptive research studies are those, which are concerned with describing the characteristics of a particular individual or group. The studies concerned with specific prediction with narration of facts and characteristics which concerning individual group or situation are all examples of descriptive research studies.

DATA ANALYSIS AND INTERPRETATION

The data collected from the samples have systematically applied and presented in the tables under various headings in the following pages. They were also arranged in such a way that, a detailed analysis can be made so as to present suitable interpretation for the same. The data have been analysed using the following statistical tools.

- Simple percentage analysis
- Ranking analysis

SIMPLE PERCENTAGE ANALYSIS

The percentage analysis is mainly employed to find the distribution of different categories of Respondents. As the value are expressed in percentage it facilities comparison and standardisation. The analysis describes the classification of the respondents failing under each category.

FORMULA

$$\text{Percentage} = \frac{\text{No. of respondents}}{\text{Total no. of respondents}} \times 100$$

TABLE NO: 4.1.1
TABLE SHOWING GENDER OF THE RESPONDENTS

Sl. No	Gender	No. Of Respondents	Percentage %
1.	Male	83	55
2.	Female	67	45
	TOTAL	150	100

Source: Primary data

INTERPRETATION

The above table 4.1.1 shows the out of 150 respondents highest 55% of respondents belong to the category of male and the lower 45% of respondents belong to the category of female.

**INFERENCE**

Majority 55% of the respondents are MALE

RANK ANALYSIS

A rank analysis is any of several satisfies that measures an ordinal association. The relationship

between ranking of different ordinal variables or different ranking of the same variable, where a “ranking” is the assignment of the label “first”, “second”, “third”, etc. To different observations of a particular variable. A rank analysis measures the degree of similarity between two rankings, and can be used to assess the significance between them.

TABLE NO: 4.2.1**TABLE SHOWING SATISFACTION LEVEL OF RESPONDENTS IN ONLINE SHOPPING**

SI.NO	PARTICULARS	RANK I	RANK II	RANK III	RANK IV	TOTAL SCORE	RANK
1.	Very convenience and time saving	75(4) 300	25(3) 75	30(2) 60	20(1) 20	455	1
2.	low price	20(4) 80	60(3) 180	50(2) 100	20(1) 20	380	2
3.	products variety	31(4) 124	45(3) 135	40(2) 80	34(1) 34	373	3
4.	you can buy rare product here	20(4) 80	35(3) 105	45(2) 90	50(1) 50	325	4

Source: Primary data

INTERPRETATION

The above table 4.2.1 shows the out of 150 respondents highest rank 1 is secured for very convenience and time saving by respondents, rank 2 is secured for low price, rank 3 is secured for product variety and the lower rank 4 is secured for you can buy rare product here by respondents.

INFERENCE

It resulted that highest rank 1 is secured for very convenience and time saving by the respondents in online shopping.

FINDING, SUGGESTIONS AND CONCLUSION**FINDINGS****SIMPLE PERCENTAGE ANALYSIS**

- Majority 55% of the respondents are Male.
- Majority 36% of the respondents are in the age group of 18 – 27 years.
- Majority 27% of the respondents are Private employee.
- Majority 27% of the respondents monthly income is less than Rs.20,000.

- Majority 53% of the respondents marital status is Married.
- Majority 34% of the respondents do shopping in online regularly (at least once in a month).
- Majority 33% of the respondents gather the source of information from friends and family.
- Majority 32% of the respondents do payment for online shopping is cash on delivery.
- Majority 19% of the respondents purchase major product in online is Electronic gadgets.
- Majority 20% of the respondents prefer in online shopping is Ease of finding product and Ease of comparison.
- Majority 23% of the respondents think feature necessary for online shopping site is Credibility.
- Majority 30% of the respondents influenced by the factor from online shopping is Door step delivery
- Majority 20% of the respondents are satisfied towards online shopping is variety of product.



- Majority 21% of the respondents says that poor product guarantee is the problem in online shopping.

RANKING ANALYSIS

- It resulted that highest Rank 1 is secured for very convenience and time saving by the respondents in online shopping.

SUGGESTIONS

From the above analysis it can be understand that attitude, perception and satisfaction of the consumer towards online shopping, lots of experience was gained from the research.

From this findings it is observed that:

- Consumer's prefer cash on delivery for the payment in online shopping instead of using credit or debit cards because of the problem raise in refunds and loss of money from account, so this can be avoided by consumers being aware of online sites.
- Consumer's prefer online shopping due to ease of finding products and ease of comparison because the consumers prefer to buy product at good quality and reasonable price, so online shopping helps consumers to choose the best products they need at expected price by comparison.
- Consumer's think feature necessary for online shopping site is credibility and the major factor influencing the consumers to do shopping from online shops is door step delivery so that the online shops can give hopeful credibility to the consumers and because of door step delivery with credibility consumers will do online shopping regularly.
- Based on the study consumer's says that the major problem faced in online shopping is poor product guarantee, but in online shopping it is not upto the level, so the improvement for product guarantee can be provided for the products sold in online to consumer's.
- Major suggestion for this study is to now the consumers satisfaction towards online shopping and it results that consumers get satisfied by purchasing variety of products in online, door step delivery and also they gave rank 1 for very convenience and time saving by doing shopping through online.

CONCLUSION

On the basis of this study it is found that consumers get satisfied with variety of products provided in online shops and they feel it is convenient to do online shopping with time saving and door step delivery because of fast moving world there is no much time for the consumers to do traditional shopping. The only thing is to be improved in online shopping is need of credibility for the risk, problems in credit or debit card payments and also guarantee for the products purchased by the consumers in online shopping because the products may have defects so it is needed. These are some of the finding from this study online shops can take into knowledge to avoid these kind of problems so that the online business will run in successful manner and consumers will get satisfied and do online shopping regularly.

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A STUDY ON PASSENGER SATISFACTION TOWARDS ONLINE BOOKING IN IRCTC APPLICATION

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ABSTRACT

Online booking system is based on the application. This project present a review on the software program “A study on passenger satisfaction towards online booking in IRCTC application” as should be used in a online booking in IRCTC application, a facility which is used to reserve seats, cancellation of reservation and different types of route enquiries used on securing quick reservations. The primary objectives of this study are to find out the passenger satisfaction towards online booking in IRCTC application. A sample size of 150 respondents. Convenient sampling method has been followed to choose the sample and the data was analyzed using simple percentage and likert scale analysis. The study reveals that social economic variable like age, education qualification, occupation, monthly income earning of the family passenger satisfaction towards online booking in IRCTC application

KEY WORDS-*Passenger satisfaction, service quality , technology changes, flexibility, online booking,*

INTRODUCTION

At its most basic, an **online booking system** is software which allows a potential passenger to book and pay for an activity or service directly through your service directly through your website. That means from the moment a passenger decides they want to book to choosing a date, picking a time and paying for the booking for the booking, everything is handled online, greatly reducing the workload on your staff and removing the opportunity for double-booking. Advanced systems like ours allow passenger to book through a variety of methods online, including mobile, greatly expanding the potential for your business, and better leveraging an increasingly social internet.

STATEMENT OF THE PROBLEM

In their busy schedule as fast roaming world public in need of online booking process. The queues in front of the ticket counters in railway stations have been drastically increased over the period of time. In order to reduce the rush of daily commuters and to avoid overcrowding at ticket counters, India Railways has offered online ticket booking services. Ticket reservation through counter is not sufficient and convenient for the passengers. The passengers are struggling to get tickets in the time from ticket counters. So they like to switch over online ticket booking. There are so many services available to book train tickets through online. Hence, it is need to study the efficiency and level of consumer satisfaction and to know the problem and to get solutions for the problem.



SCOPE OF THE STUDY

As a success of business depends on the passenger satisfaction towards their services on products and a brand image from public so the study or analysis on passenger satisfaction help the business to know their efficiency. The scope of this study is know passenger satisfaction level on **IRCTC** and to know what are factors effect passenger satisfaction and factors which convenience the passenger and interpreted and give suitable suggestions to improve then passenger satisfaction level in future.

OBJECTIVES

- To study and analyses use of online railway ticket booking services process.
- To measure the level of satisfaction derived by the passenger.
- To know identify the problems faced by the customer in online railway ticket booking passenger.

RESEARCH METHODOLOGY

Research methodology is the systematic way to solve research problem. It is a science of studying how research is to be carried out. Its aim is to give work plan of research. The study is based on a survey collected with the help of primary and secondary data.

DATA USED: Primary data and Secondary data are used.

SAMPLE SIZE: The study was conducted with a sample size of 150 respondents.

ANALYTICAL TOOLS USED:

Simple percentage, Likert scale analysis.

REVIEW OF LITERATURE

Sheeba.A. A & Dr. K. Kumuthedevi (2013) in their study, "service quality of south Indian railway determines of satisfaction in trains", service quality may be defined and consumer perception of how well as service need are exceeds their expectation. The study aims to identify factors which the Indian railways provided for the passenger in train. In their objective with the help of the questionnaire. The result provided from the statistical analysis supported that the determines of safety and security is the most important factor if determine the satisfaction of the consumer.

Dr.U. Sirnivasa Roa (2018) "passenger satisfaction on catering services of Indian Railway Catering and Tourism Corporation ltd(IRCTC)"In the study Indian railway span global volume in hospitality and catering sectors with services provided to 22 million passengers a day. The passenger satisfaction level on catering service of Indian railways. The data has been collected from both sources primary and secondary. The standard meals to be priced in the multiples of Rs.10 to prevent overcharging. concern for the environment and heritage. Conclusion IR shall have the mandate to firm an efficient quality assurance programs to ensure good quality and hygienic food to the passengers.

HISTORY & PROFILE OF THE STUDY

Indian Railway Catering and Tourism Corporation ltd. (IRCTC) is a Public Sector Undertaking (PSU) under the ministry of railways. During 1999, in the context of reduced budgetary support and high cost of market borrowing, Indian Railways (IR) explored ways and means of maximising revenues, mobilizing resources, reducing subsidies and stimulating private participation and investment in rail related infrastructure and services through various options including organization restructuring and corporatisation. The need to commercialise and corporatise railway catering and tourism related business as a profit centre and cost centre was acknowledged as running of passenger services and allied amenities such as catering, hospitality etc., which had inbuilt subsidies by way of low tariffs, administered pricing, possible leakage of revenues and high establishment cost, were an important part of Railway's business.



ANALYSIS

TABLE SHOWING THAT SATISFIED WITH BOOKING TICKETS THOUGH IRCTC APPLICATION

S.NO	Factors	No. of Respondents	Percentage
1	Highly satisfied	45	30
2	Satisfied	78	52
3	Neutral	23	15
4	Dissatisfied	3	2
5	Highly dissatisfied	1	0.67
TOTAL		150	100

INTERPETATION

This table shows that out of 150 respondents, 30% of the respondents are highly satisfied, 52% of the respondents are satisfied, 15% of the respondents are

neutral, 2% of the respondents are dissatisfied, 0.67% of the respondents are highly satisfied.

INFERENCE

It is clear that majority of **52%** of the respondents are **satisfied**.

TABLE SHOWING THAT MONEY TRANSACTION FACILITIES

S.NO	Factors	Respondents	Likert Scale Value	Total Value
1	Very easily	30	5	150
2	Easily	55	4	220
3	Neutral	40	3	120
4	Bad	19	2	38
5	Very bad	6	1	6
TOTAL		150		534

INTERPRETATION

$LIKERT = \frac{\sum (fx)}{\text{Total number of respondents}}$

$$= \frac{534}{150}$$

$$= 3.56$$

INFERNCE

Likert scale value is **3.56** which is greater than the mid value (**3**), So the respondents are **easily**.

FINDINGS

1. SIMLPE RECENTAGE METHOD

- Majority of the respondents **53%** belong to **Female** gender.
- Majority **64%** of the respondents are laid between **20-30** years of age.
- Majority of **60%** of the respondents are **Unmarried**.
- Majority of **64%** of the respondents are **UG**.
- Majority of **40%** of the respondents are **private employed**.
- Majority of **36%** of the respondents are **less than 1.5 lakhs**.

- Majority of **32.67%** of the respondents are **once in a six months**.
- Majority of **44%** of the respondents are **personal**.
- Majority of **71.33%** of the respondents are **IRCTC**.
- Majority of **52%** of the respondents are **satisfied**.
- Majority of **55.33%** of the respondents are **agree**.
- Majority of **26.67%** of the respondents are **debit card**.
- Majority of **43.33%** of the respondents are **easily**.
- Majority of **68.67%** of the respondents are **7days**.
- Majority of **28.67%** of the respondents are **neutral**.
- Majority of **44%** of the respondents are **most of the time**.
- Majority of **30%** of the respondents are **service charge**.



2. LIKERT SCALE ANALYSIS

- Likert scale value is **1.83** which is greater than the mid value (3), So the respondents are **bad**.
- Likert scale value is **3.62** which is greater than the mid value (3), So the respondents are **easily**.
- Likert scale value is **2.96** which is greater than the mid value (3), So the respondents are **neutral**.
- Likert scale value is **2.70** which is greater than the mid value (3), So the respondents are **neutral**.
- Likert scale value is **3.56** which is greater than the mid value (3), So the respondents are **easily**.
- Likert scale value is **4.18** which is greater than the mid value (3), So the respondents are **very easily**.
- Likert scale value is **4.26** which is greater than the mid value (3), So the respondents are **excellent**.
- Likert scale value is **4.56** which is greater than the mid value (3), So the respondents are **excellent**.
- Likert scale value is **4.35** which is greater than the mid value (3), So the respondents are **excellent**.
- Likert scale value is **4.64** which is greater than the mid value (3), So the respondents are **excellent**.
- Likert scale value is **3.96** which is greater than the mid value (3), So the respondents are **good**.

SUGGESTIONS

At present passengers are well aware about the online reservation system of IRCTC, this system being used by the education population for travel plan and ticket booking. IRCTC online reservation system is very convenient for the passengers and hence it is popular and its popularity is increasing day by day.

But there are some concerns with this system like there are significant numbers of failed transaction, sever down and server crashing problem are very often. The system is failed to provide smooth service in time of urgency like the system is not very effective to book TATKAL tickets. IRCTC should continue to improve its service regarding server performance and payment gateways.

CONCLUSION

Understanding the fact that online ticket booking is one of the most crucial bits of planning any trip or holiday, IRCTC proved assurity for the same. Once can manage booking ticket online and opt for a cancellation in case of any change in plans .one can be notified on email as well as cell phone on all confirmation and cancellations. The contribution of this study is the identification of factors that determine passenger satisfaction with services offered by the rail system.

The model, although designed in a specific context, may be extended to other similar services and help to improve quality of life for the masses and thus increase overall satisfaction.

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FIB-SEM NANOFABRICATION- A REVIEW

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ABSTRACT

Based on unique FIB and precision stage technology as well as a novel nanofabrication platform, the Raith FIB-SEM is designed around the FIB as the primary patterning technique, supported by uncompromised SEM and laser interferometer stage capabilities. Such a FIB-centric state-of-the-art nanofabrication system allows scientists to take advantage of the unique capabilities afforded by focused ions. This paper discusses various capabilities and key strengths, based on exemplary applications from different nanopatterning areas.

INTRODUCTION

Over the last decades, focused ion beam (FIB) technology has evolved from a niche method into an extremely versatile technique for various application areas. FIB's great success has been accelerated in particular by the combination with scanning electron microscopy (SEM) in FIB-SEM microscopes. Today these FIB tools are found in most microscopy and analysis labs worldwide, where the FIB column is included as an add-on component for supporting sample preparation and basic patterning tasks. However, FIB is also an increasingly valuable tool for nanofabrication and rapid prototyping applications, providing direct resistless three-dimensional patterning and thus complementing other top-down lithography instrumentation. Even though patterning with ions has advanced very quickly to a high performance level, the SEM prioritized microscope architecture has limited it so far to more sophisticated applications.

STRENGTHS AND LIMITATIONS OF EBL

Today's state-of-the-art nanofabrication systems must deliver flexibility, stability over space and time, accuracy, and ease of use. These demands are fulfilled by EBL patterning: precise laser interferometer stage (LIS), best positional stability, enhanced beam current stability, excellent beam size deflection and accuracy are mandatory for these instruments. Moreover, software with industry standard GDSII designs, advanced beam control, navigation, and true automation are essential components of any dedicated nanofabrication system. These attributes have made EBL the most prominent fabrication method in the field of nanofabrication, achieving wafer scale patterning to nanometer accuracy in terms of placement and feature size in a reasonable time. However, EBL unfolds its strengths only in combination with other techniques used in the process chain. For transforming a substrate into a patterned substrate, EBL patterning is just one process step among many others, such as etching and lift-off. Furthermore, EBL is a superior method for

lithography on flat substrates, where patterning of topographic samples can be complicated to achieve.

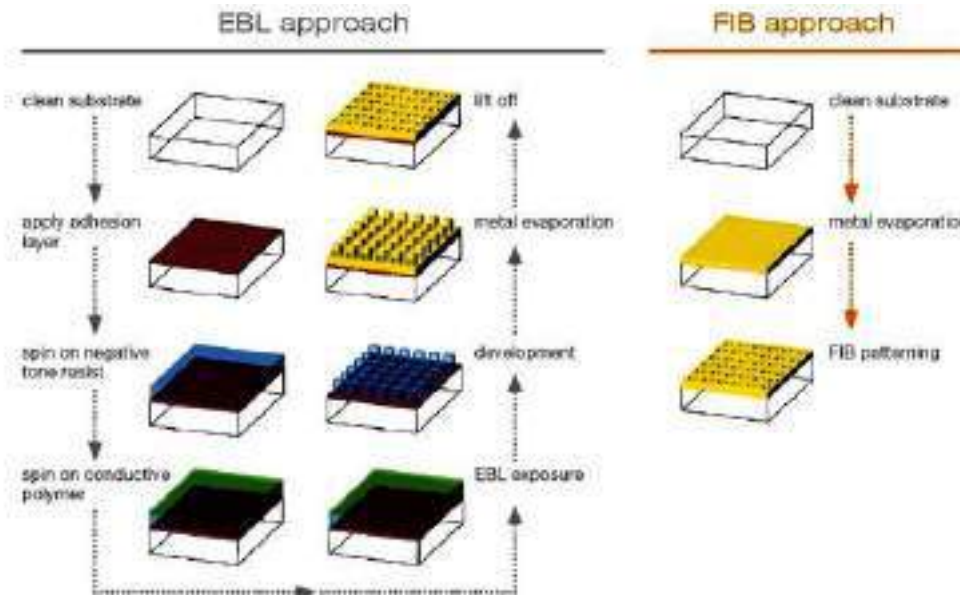


Figure 1: Number of steps for e.g. lift-off process is strongly reduced in case of FIB (right) compared to EBL approach (left).

Lean Nanofabrication: Core process steps addressed by FIB. The limitations of long process chain and patterning of topographic surfaces can easily be overcome by using a focused ion beam to structure substrates. FIB-SEM instruments are commonly used for 3 dimensional patterning – even over topographic samples. As another benefit of these systems, the resistless fabrication method allows direct patterning with far fewer process steps. As a consequence, development of new patterning processes can be achieved very fast thanks to in-situ process control.

Conventional FIB-SEM systems, designed for various microscopy and analysis applications in a SEM-centric setup, exhibit some limitations for nanofabrication applications. The FIB column is inclined with respect to the horizontal stage motion and the column and stage technology themselves, and this characteristic, in combination with the overall system and software platform, does not support advanced FIB nanopatterning. Long term highest-precision automated unattended or large-area processes demand a different

class of technology and system architecture. These FIB capabilities plus the in-situ SEM process control unlock new pathways and help achieve results more rapidly for an increasing number of applications.

FIB HARD MASKING OF LARGE AREA PATTERNS

The first example shows a novel way of employing specific ion beam effects for the purpose of fast patterning. When patterning a substrate using a low ion dose, the Ga ions are implanted into the surface without even milling the top surface layer. Instead of creating topographic structures, the sample surface can be functionalized in a very controlled way by this Ga implantation with high lateral resolution. In a subsequent etching step, this functionalized top layer serves directly as a hard mask, resulting in a very simple and fast process. An example of the process workflow is illustrated in Figure 2.

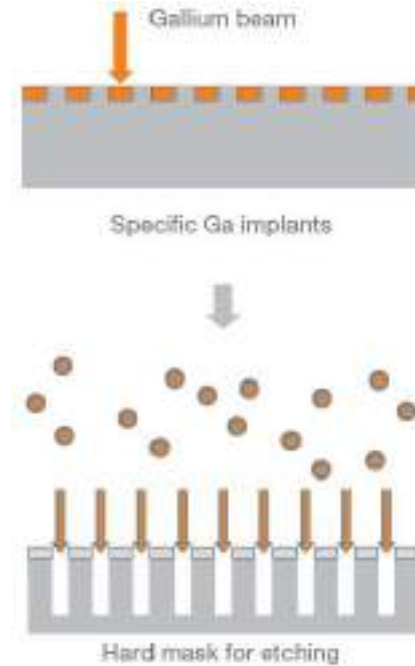


Figure 2: Sketch of the functionalization process – after controlled Ga implantation trenches are etched into the substrate.

After functionalization of a diamond surface with Ga ions and subsequent fluorine plasma etching, a grating

with about 400 nm line width and 50 % duty cycle was fabricated (see Figure 3).



Figure 3: SEM viewgraph of the etched grating [1]

The complete design consists of multiple gratings with varying orientation. The overall structure extends over an area of 3 x 4 mm². The resulting pattern forms a diamond-like structure illustrated in the

photograph of Figure 4. The different grating orientations generate different colors in the optical viewgraph. The functionalization step took 4h, which is comparatively fast.

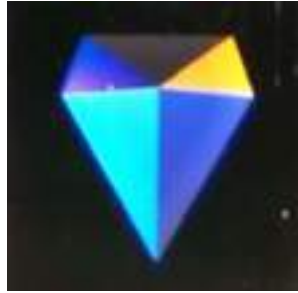


Figure 4: Photograph of the complete pattern after etching. Colors represent the different grating orientations[1]

HIGH RESOLUTION FEATURES IN A LARGE ARRAY

A FIB spot is usually not described by a pure Gaussian distribution, but instead exhibits significant beam tails outside the central spot. The contribution of these low dose beam tails becomes important for gas assisted processes or creates collateral damage close to, or even inside, the desired pattern. Although this dose

is very small (10^{-2} – 10^{-5} of peak intensity), it can still have a significant influence on the result: the superposition of the beam tails at the edge of a pattern or between adjacent and dense patterns can lead to unwanted edge rounding or sample damage. Challenges for achieving small feature sizes and at the same time a large array for final measurements are given e.g. in the field of plasmonics, where large numbers of identical structures are designed with high pattern density.

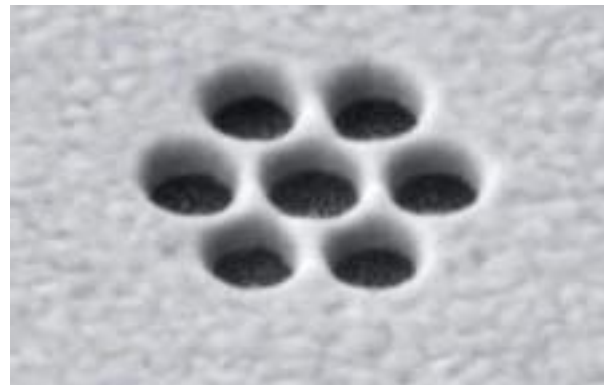
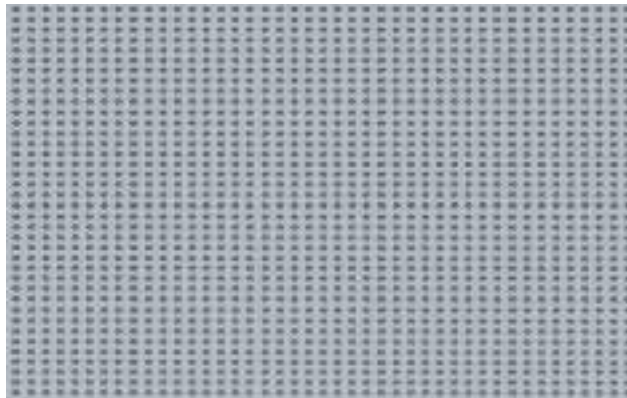


Figure 5: Oligomer structures within a 100- μ m-wide array for plasmonics, showing excellent fidelity and reproducibility [2]

Figure 5 shows an array of 12,000 oligomers each consisting of 7 circles. Between two adjacent circles, the remaining strip of 80-nm-thick gold has a width of only 30 nm. The ability to create such a strip in gold is also good proof of excellent beam spot characteristics, specifically the record low beam tails, since the beam profile overlaps from several directions at this point. Finally, it is noted that the film consists of polycrystalline gold, which is even more difficult to pattern than single crystal gold films in terms of high resolution and reproducibility.

DEVELOPMENT OF AN ADVANCED FIB PROCESS

Fresnel zone plates (FZP) for X-rays require high accuracy, high aspect ratio and large area structures. In most cases they are fabricated with electron beam lithography (EBL) based techniques plus plasma or wet etching, including extensive efforts in development of the complete nanofabrication process. For this reason, and because of the fact that many devices are made on membranes, a direct patterning technique like FIB offers significant benefits. Here we report on a FZP fabricated in a gold film (Figure 6). It is very difficult to achieve small feature size or high aspect ratio structures on such material, due to gold's high sputter yield and extreme sensitivity to collateral

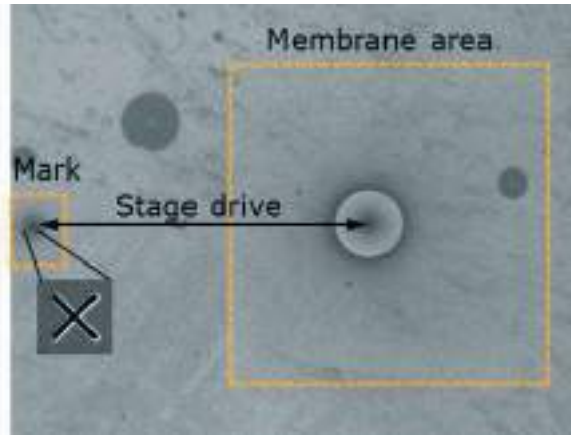


Figure 6: verview SEM image of the silicon nitride membrane with active area including gold zone plate and reference mark on bulk sample for automatic positioning correction [3]

beam damage. The pattern was fabricated by applying automated position correction with a reference mark on the bulk material far outside the field of view and the sensitive membrane area (Figure 6). This procedure significantly minimized the risk of membrane rupture.

The achieved total accuracy of better than 20 nm over 15 h thus includes several highly precise and “blind” drives of the laser interferometer stage to the alignment mark and back to the membrane.

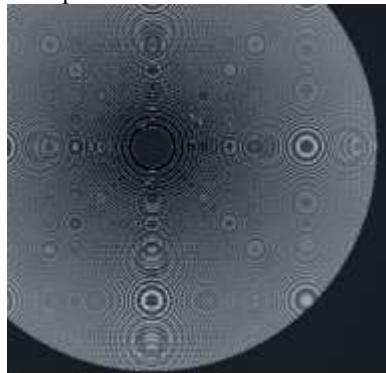


Figure 7: SEM viewgraph of the FZP [3]

Given the dimensions of the FZP, two parameters are the most crucial to investigate: the aspect ratio of the smallest gold zones, and the circularity of the complete zone plate. The first one was checked by cross-sectioning and inspection at four different locations (top, bottom, left, right). The literature shows that an aspect ratio of even 5:1 is an excellent result for

patterning of gold. Here the height of the outermost 100 nm zone was found to be almost unchanged (Figure 8). Verifying the circularity of 100 μm to accuracy of much better than 100 nm is only possible by using a laser interferometer stage in combination with a navigation and metrology software.



Figure 8: Ion beam cross-section image of outer zones after deposition of a protective and contrast enhancing layer of tungsten [3]

Making use of SEM based metrology, we set up high resolution e-beam line scans at 8 locations including diagonal positions (see Figure 9). We confirmed that the circularity differs by less than 20 nm from ideal,

sufficient for excellent FZP performance. This has been confirmed by X-ray tests showing even better resolution than predicted from theory.

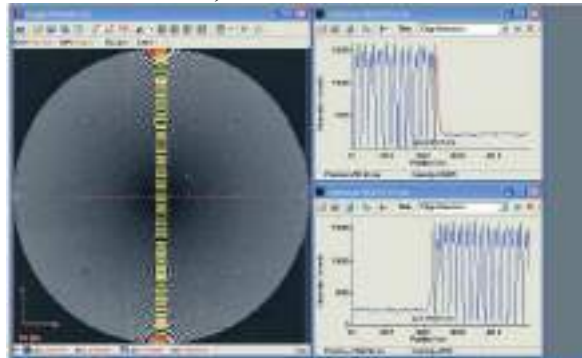


Figure 9: Example of e-beam line scan measurements to determine the diameter in a vertical direction [3]

COMBINED EBL – FIB PROCESS AND QUALITY ASSURANCE AT WAFER SCALE

Membrane based solid state nanopore devices for DNA sequencing and biomolecule analysis are of high interest from both scientific and commercial

viewpoints. On the one hand, a feature size below 20 nm for the pore itself is mandatory; on the other, a large number of devices are used for research and, in particular, for commercial screening applications, which requires small batch true water scale production.

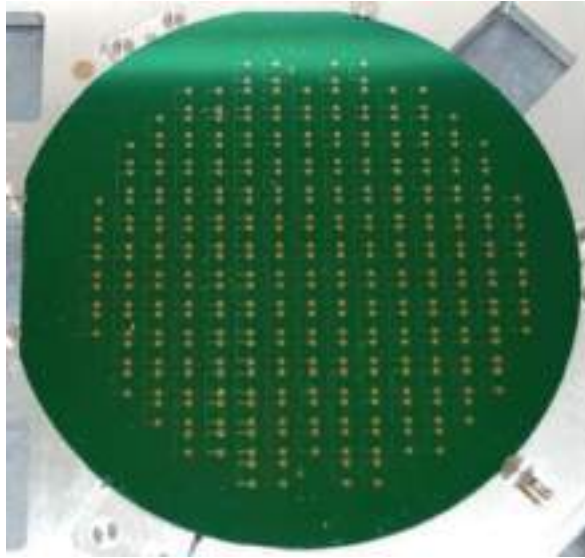


Figure 10: 4 inch wafer with 175 devices of connection pads and read-out electrodes [4]

Here we used a combination of EBL for creating dedicated read-out electrodes for 175 devices on a 4 inch wafer (Figure 10), and FIB for drilling the nanopore well aligned within the corresponding gap (Figure 11). The combination of both techniques,

particularly for wafer scale step and repeat and highest resolution processing, is the only solution, since keeping each and every device perfectly in focus can be ensured by the automated height sensing function

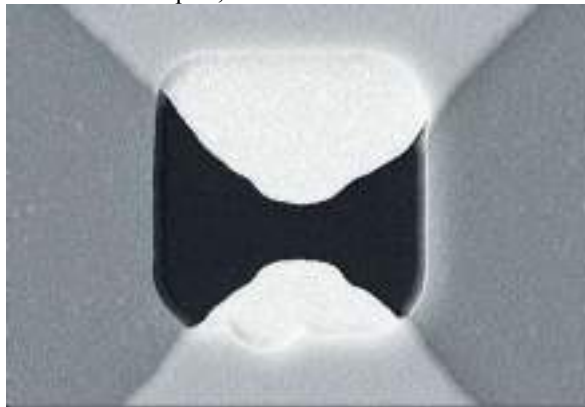


Figure 11: Read-out electrodes within window for placing the nanopore

in Raith systems. Therefore, we were able to achieve 20 nm pores in a 100 nm thick Si₃N₄ membrane across the wafer in a fully unattended way (Figure 12). This

has been documented by electron beam quality assurance with a Raith EBL system which again is possible at wafer scale by means of automation

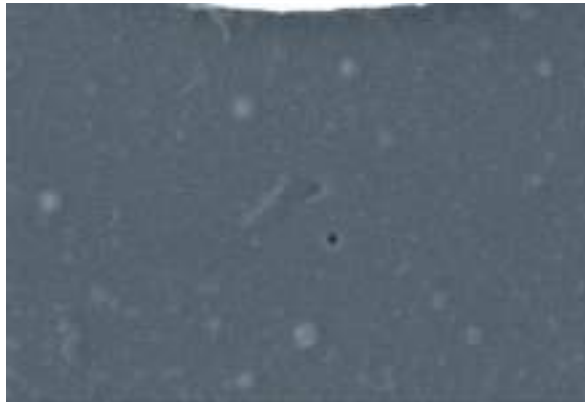


Figure 12: E-beam quality assurance of 20 nm nanopore in 100 nm thick Si₃ N₄ membrane [4]

TRUE 3D NANOSTRUCTURES AT ONCE OVER MM LENGTH

Finally, structures for micro- and nanofluidic devices are good examples of cases where lateral and depth definition is required to high precision levels and over extended areas. The process for creating a 3D

microfluidic mixer channel of constant cross-sectional area while alternating between narrow and deep as well as shallow and wide (Figure 13) can be mastered in a unique approach using FIB nanofabrication. The design elements define the lateral shape and simultaneously the dose for the direct milling process controls the intentionally changing channel depth.

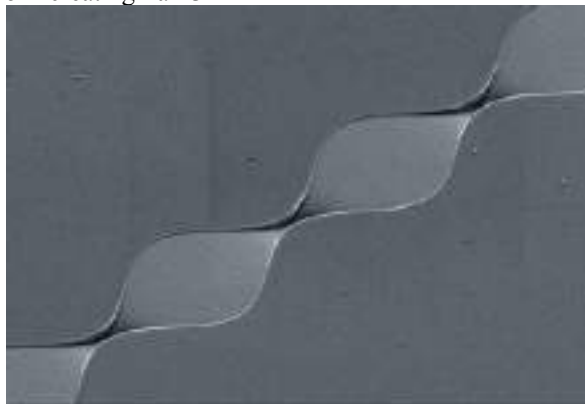


Figure 13: Part of a 1 mm long micro-fluidic mixer channel created by direct milling and stitching [5]

Moreover, employing the laser interferometer stage for stitching multiple base units enables a 1-mm-long channel to be achieved for real devices. This FIB milling process requires some extra care, given the enhanced sputter rate at the edge of subsequent write

fields. Possible solutions include minimizing this characteristic by overlapping parts of the write fields with adapted dose distribution (Figure 14). Thus, a very smooth and 3D well defined channel is easily obtained directly in the substrate material.

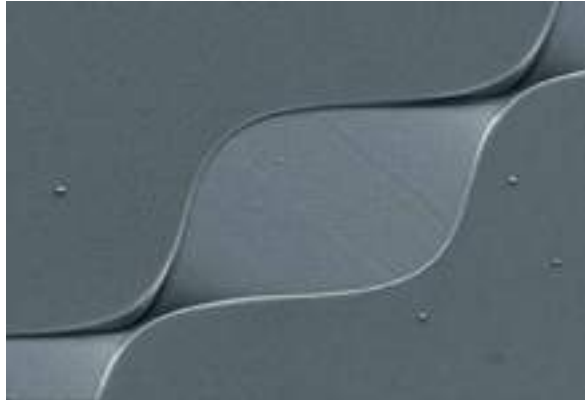


Figure 14: Advanced dose control and overlapping base units during stitching help overcome milling artifacts of adjacent write fields [5]

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A STUDY ON THE IMPACT OF ATTITUDE TOWARDS RURAL ENTREPRENEURSHIP AMONG ORGANIC FARMERS IN MANIPUR, INDIA

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ABSTRACT

In the past few decades, the policymakers and the government officials are providing more focus on developing entrepreneurship among the rural population. Hence the importance of studying the attitude towards entrepreneurship plays a vital role to solve the unemployment problem prevailing in our country and to provide scope for income generation. The purpose of the study is to explore the level of attitude towards entrepreneurship among the rural organic farmers in Manipur state and identify the impact of the determinants of the attitude towards entrepreneurship on the attitude level. The data were analysed on a sample of 156 organic farmers using index analysis and multiple regression. The results show that female respondents are having a higher level of attitude towards rural entrepreneurship than their male counterparts. Specifically, the present study also suggests that The significant influencing determinants of attitude towards rural entrepreneurship on the attitude towards rural entrepreneurship Index among the respondents in the male are Personal efficacy, resource efficacy, social efficacy and Technology efficacy. In the case of female, the significant influencing determinants of attitude towards rural entrepreneurship on attitude towards rural entrepreneurship Index are business acumen efficacy, resource efficacy, social efficacy and Technology efficacy.

KEYWORDS: *Rural entrepreneurship, Personal efficacy, business acumen efficacy, resource efficacy, social efficacy and Technology efficacy*

INTRODUCTION

Entrepreneurs and entrepreneurship have remained on the back side in communities while we talk about Entrepreneurship. But as someone has rightly said, society or any economy can not build without entrepreneurship. Entrepreneurial activity has been described as one resource that developing countries need to leverage to allow them to compete in a global economy. Through increased employment opportunities for all and consequently economic growth

in and out of the country, entrepreneurship is essential for further social development.

One of the principal challenges of our planning process has been the growth of the rural economy. Accordingly, attempts have been made on a continuous basis for enhancing the economic and social well-being of people in rural areas on a sustainable basis. This is maintained by the implementation of a broad range of rural economy programmes/schemes. The schemes aim at bridging the rural-urban divide;



poverty alleviation; job generation; infrastructure growth and social security.

The Indian rural sector produces around 50 per cent of the gross domestic product (GDP) of the country. There are about 840 million people in rural India, and rising income levels and greater aspirations are gradually driving demand there. In the period 2009–2012, rural consumption per person increased annually at 19 per cent, according to data from the National Sample Survey Organization (NSSO).

Rural Entrepreneurship is focused on stimulating the creativity of local entrepreneurs and the subsequent development of indigenous businesses. It recognises potential in the rural areas and drives a specific mix of capital either within or outside of agriculture. By developing new production methods, new goods, new markets, and generating job opportunities, rural entrepreneurship brings economic benefit to the rural sector, thus ensuring continuous rural growth.

The growth of entrepreneurship is comparatively lower in Manipur's rural backward areas. However, many young educated persons are willing to start entrepreneurship. The growth trends of entrepreneurship are very closely correlated with the socio-economic situation in the country.

The intention to act entrepreneurially depends on the individual's human resources, as argued elsewhere. Here we say that human capital involves not only personal skill and social capital but also inherent attitudes to aspects of entrepreneurship, such as freedom, firm ownership and risk. The motive for seeking self-employment (or any other entrepreneurial behaviour) is thus regarded as a feature of the skills and attitudes of a person.

LITERATURE REVIEW

Entrepreneurship is considered one of the most critical economic development techniques in the 21st century to boost the economic growth of a country and preserve its competitiveness by leveraging the opportunities of globalisation. (Schaper and Volery, 2004; Venkatachalam and Waqif, 2005). Attitude plays a critical role in influencing the behaviour of an individual (Thavaraj, 2012).

Many research findings have shown that there is a positive relationship between entrepreneurship and economic growth in terms of job creation, firm survival and technological change (Gorman, Hanlon et al. 1997; Lena and Wong 2003; Karanassios, Pazarskis et al. 2006; Banchflower, 2000). Dual roles for women and discrimination against women are significant social constraints. (Thavaraj, 2005).

Kuratka and Richard (1997) Entrepreneurship is the dynamic method of producing total wealth created by individuals who, in terms of capital, time and career commitment, take the significant risks of providing value for specific goods or services.

Abraham D. T., Kalamkar S. S. (2011) reported that in India, initiatives like the IRDP and the SGSY were undertaken to reach the poor in the rural areas aimed at rising income through self-employment. Many of these projects, gave thrust to promoting community entrepreneurship as a community approach was considered to be more appropriate and hence to be promoted.

Programs produce entrepreneurs who can build small and micro-enterprises that need lower funding investments and just a few workers (R. K. Khatkar, 1989).

Agriculture is the mainstay of the Indian economy, as it constitutes the backbone of rural India which inhabitants more than 70 per cent of the total Indian population. Besides, India's rural economy has played a crucial role in India's overall economic development and social growth. (Vaidyanathan S., Sundar V., 2011).

The government of India and the respective governments in the states have established, built and maintained the institutional network of organised developmental institutions in the country supporting the growth and sustenance of micro and small village enterprises and alleviating rural poverty. (Rakesh Kumar Gupta, 1993).

OBJECTIVES OF THE STUDY

1. To reveal the level of rural entrepreneurial attitude among the organic farmers in Manipur.
2. To analyse the impact of the attitude level on the determinants the rural entrepreneurial attitude.

METHODOLOGY

Sample Design

The sampling technique adopted for the study is convenience sampling. All the organic farmers residing in rural areas in Manipur state, India form the population of the study. Out of the sixteen districts, the capital (Imphal – East and West) was excluded from the study as it falls under the urban base. Hence among the fourteen districts, the researcher has selected four districts, namely Senapati, Ukhrul, Tamenglong and Noney, for the study. The sample size was arbitrarily chosen as 156 samples.



Data Collection

The data used in the study are both primary and secondary. The secondary data were collected from the reports, journals, technical books and the Internet. The primary data were collected using a structured interview schedule.

The attitudes towards rural entrepreneurship among the organic farmers are measured from the related statements drawn from the reviews. In total, there were 40 statements have been generated to measure the attitude towards rural entrepreneurship among the organic farmers. The final set of structured interview schedule was shown to ten rural farmers in Manipur state for content validity. By the pre-test, suitable modifications and alterations have been carried out to enrich the quality of the structured interview schedule. The researcher personally administered the structured interview schedule.

ATTITUDE TOWARDS RURAL ENTREPRENEURSHIP INDEX AMONG THE RESPONDENTS

The attitude towards rural entrepreneurship Index reveals the summative view on various factors involved in attitude towards rural entrepreneurship. The attitude towards rural entrepreneurship Index is calculated by

$$AREI = \frac{\sum_{i=1}^n ISAREV}{\sum_{i=1}^n MSAREV} \times 100$$

Whereas,

ISAREV – Individual score on attitude towards rural entrepreneurship Variable

MSAREV – Maximum score on attitude towards rural entrepreneurship Variable

i=1. . . n– Number of statements included in attitude towards rural entrepreneurship

The attitude towards rural entrepreneurship Index in the present study is confined to less than 21 per cent, 21 to 40, 41 to 60, 61 to 80 and above 80 per cent. The distribution of respondents on the basis of their attitude towards rural entrepreneurship Index is shown in Table 1.

TABLE 1
Attitude towards Rural Entrepreneurship Index (AREI) among the Respondents

Sl.No.	attitude towards rural entrepreneurship Index (in per cent)	Number of Respondents		Total
		Male	Female	
1	Less than 21	17	11	28
2	21-40	10	16	26
3	41-60	15	32	47
4	61-80	13	29	42
5	Above 80	4	9	13
	Total	59	97	156

The dominant attitude towards rural entrepreneurship Index among the respondents is 41 to 60 and 61 to 80 per cent, which constitute 30.12, and 26.92 per cent to the total, respectively. The respondents with an attitude towards rural entrepreneurship Index of above 80 per cent constitute 08.33 per cent to the total. The dominant attitude towards rural entrepreneurship Indexes among the respondents in the male are less than 21 and 41 to 60 per cent, which constitute 28.81 and 25.42 per cent to its total respectively. At the same time, among the respondents in female, the two dominant levels are 41

to 60 and 61 to 80 per cent, which constitute 32.98 and 29.89 to its total respectively.

Impact of Determinants of attitude towards rural entrepreneurship on the attitude towards rural entrepreneurship Index

The dominant determinants of attitude towards rural entrepreneurship are narrated into Personal efficacy, business acumen efficacy, resource efficacy, social efficacy and Technology efficacy with the help of factors based on the model RENSAM BTE Model: Barriers to Entrepreneurship (Thavaraj and Reney (2015). In order to analyse the impact of above-said



determinants of attitude towards rural entrepreneurship on attitude towards rural entrepreneurship Index among the respondents, the multiple regression analysis has been administered. The fitted regression model is:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e$$

Whereas Y – attitude towards rural entrepreneurship Index among the respondents

X₁– Score on Personal efficacy among the respondents

X₂– Score on business acumen efficacy among the respondents

X₃– Score on resource efficacy among the respondents

X₄– Score on social efficacy among the respondents

X₅– Score on Technology efficacy among the respondents

b₁, b₂, b₃, b₄, b₅ – regression coefficients of independent variables

a – Intercept and

e – error term

The impact of determinants of attitude towards rural entrepreneurship on attitude towards rural entrepreneurship Index among the respondents in male, female and also for pooled data have been analysed separately. The results are shown in Table 2.

TABLE 2

Impact of Determinants of attitude towards rural entrepreneurship on the attitude towards rural entrepreneurship Index

Sl.No.	Independent Variables	Regression co-efficient among the Respondents		
		Male	Female	Pooled
1.	Personal efficacy	0.1467*	0.1242	0.1379*
2.	business acumen efficacy	0.1101	0.1607*	0.1155
3.	resource efficacy	0.2517*	0.2318*	0.2329*
4.	social efficacy	0.2741*	0.2455*	0.2636*
5.	Technology efficacy	0.2105*	0.2015*	0.1944*
	Constant	0.9107	1.2452	0.9466
	R ²	0.7356	0.7235	0.8326
	F-statistics	11.3931*	10.9012*	12.7105*

*Significant at five per cent level.

The significant influencing determinants of attitude towards rural entrepreneurship on the attitude towards rural entrepreneurship Index among the respondents in the male are Personal efficacy, resource efficacy, social efficacy and Technology efficacy. A unit increase in the above said four determinants results in an increase in attitude towards rural entrepreneurship Index of the respondents by 0.1467, 0.2517, 0.2741 and 0.2105 units, respectively.

In the case of female, the significant influencing determinants of attitude towards rural entrepreneurship on attitude towards rural entrepreneurship Index are business acumen efficacy, resource efficacy, social efficacy and Technology efficacy, since the respective regression coefficients are 0.1607, 0.2318, 0.2455 and 0.2015 respectively.

The analysis of pooled data reveals that a unit increase in the Personal efficacy, resource efficacy, social efficacy and Technology efficacy results in an increase in attitude towards rural entrepreneurship Index of 0.1379, 0.2329, 0.2639 and 0.1944 respectively. The changes in determinants of attitude towards rural entrepreneurship explain the differences

in attitude towards rural entrepreneurship Index among the respondents to the extent of 83.26 per cent.

CONCLUSION

It is revealed from the study that the organic farmers in Manipur state are having an average level of attitude towards entrepreneurship. It was also concluded that the female organic farmers are having a higher level of an attitude than the male counterparts concerning entrepreneurship. The significant influencing determinants of attitude towards rural entrepreneurship on the attitude towards rural entrepreneurship Index among the respondents in the male are Personal efficacy, resource efficacy, social efficacy and Technology efficacy. In the case of female, the significant influencing determinants of attitude towards rural entrepreneurship on attitude towards rural entrepreneurship Index are business acumen efficacy, resource efficacy, social efficacy and Technology efficacy. The analysis of pooled data reveals that a unit increase in the Personal efficacy, resource efficacy, social efficacy and Technology efficacy increases attitude towards rural



entrepreneurship Index. The government and the entrepreneur associations in Manipur should provide additional support need so that they can highly increase the entrepreneurial activities which will benefit the society and also the development of the country.

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INFLUENCE OF THE INFORMATION SOCIETY ON THE PROBLEM OF FORMATION OF ICT COMPETENCE OF DIRECTOR OF SECONDARY SCHOOL

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ABSTRACT

The article examines the problem of informatization of education, the essence of the information society, studies the influence of information technologies on the process of forming ICT competence of the director of a general education school, defines the concept of ICT competence, emphasizes that new requirements are imposed on directors in terms of working with information and communication. It was revealed that the basic component of the professional competence of a school director at the present stage is competence in the field of creative use of modern ICT.

KEYWORDS: *informatization of education, information society, information and communication technology, ICT competence, school Director*

INTRODUCTION

Currently, there is a rapid development of information technologies, the active and effective implementation of which in education is an important factor not only in creating an education system that meets the requirements of the information society, but also in the formation of an information and educational environment of an educational institution, which has significant educational potential, which makes it possible to improve management efficiency. educational process and contributes to the openness of the educational space.

The purpose of introducing information and communication technologies into the school management process is to improve the quality and efficiency of management decisions and the transition to paperless work technology.

The modern managerial activity of the director of a general education school is becoming more and more intellectual and scientific. The directors of the general education school use information and communication technologies in all areas in the preparation of reports, the formation of databases of students and pedagogical workers, in office work, work with regulatory documents, the organization of educational and methodological work and contractual activities.

In a modern school that monitors and diagnoses, personality-oriented and developmental

learning, the flow of information received by participants in the educational process increases many times over. In this regard, the use of modern information technologies is an integral part of the educational process and the most important direction in the implementation of the school development program and the strategy of preparing students for life in the information society. This process today requires the director and the administrative apparatus as a whole to be constantly involved in the process of learning and mastering new information technologies in order to increase the innovative potential of an educational institution.

LITERATURE REVIEW

The information society today makes special demands on the director of a general education school, his professional competence, one of the most important components of which is ICT competence.

What can be understood by the ICT competence of a director of a secondary school? Ability to use basic PC skills (working with tables, creating presentations, working with word processors), or working with specialized automated school management systems? In modern society, every person should be able to use basic programs, at least at a primitive level, not to mention people whose work with a computer is in the first place, therefore, speaking about the ICT competence of the



director of a secondary school, in the conditions of informatization of education, it is impossible to imagine without using Internet, email, and automated school management systems. On the basis of creative ideas and the effective use of modern ICT, the information and educational environment of the school is formed.

It is the director of the secondary school that plays the main role in the formation of the information and educational environment of the school. For this, the director of a secondary school must not only know and have an idea of the possibilities of modern ICTs, but also effectively use them in his professional and managerial activities and be able to motivate others and himself to use them creatively.

Possession of information competence, combined with the qualified use of modern means of information and communication technologies, is the essence of ICT - competence.

The changes taking place in the modern world, corresponding to the stage of transition to the information society, have caused the need to search for new approaches to the theory and practice of the formation of ICT competence in all areas of human activity, in particular in the activities of the director of a general education school.

In the Decree of the President of the Republic of Uzbekistan №DP-5538 «On additional measures to improve the public education management system» one of the main directions of reforming the public education system is the widespread introduction of modern information and communication technologies into the management system of public education institutions, achieving transparency and effective public control, including ensuring access of all institutions to telecommunication networks, creating publicly available databases, introducing an electronic rating system evaluating their performance.

One of the conditions for the functioning of the information society is the informatization of education, in particular, the informatization of school education. In modern conditions of informatization of education, the solution to the problem of ensuring the quality of general secondary education cannot be carried out without the formation and development of an information educational environment. The development of school education dictates the need to improve the management processes of the information educational environment of the school. This, in turn, creates conditions for improving the professional competence of the school director, the entire management and teaching staff of the school, improving his competence in the use of modern information and communication technologies or ICT competence, which is a necessary condition for improving the quality of training of school graduates in demand on the labor market. and successful in further training. Modern information and

communication technologies are an effective tool for the implementation of innovative activities.

In the general secondary education system, as in the education system as a whole, a number of new trends have emerged today, namely:

- Creation of new types of educational institutions;
- Introduction of modern information and communication technologies;
- Expansion of international educational contacts;
- Entering the international educational space.

These new trends necessitate the development and implementation of new management solutions in the professional activities of the school director, which will ensure the effective functioning of the general education school in the information society.

Information society is the concept of a post-industrial society, a new historical phase in the development of civilization, in which information and knowledge are the main products of production [1]. Distinctive features of the information society are the increasing role of information and knowledge in the life of society, as well as the creation of a global information space, which provides:

- Effective information interaction of people;
- Their access to world information resources;
- Meeting their needs for information products and services.

Let's highlight the general fundamental features of the information society:

- changing the role of information and knowledge in the life of society, which is expressed primarily in the increase in information saturation in all spheres of activity, in the transformation of information and knowledge into the most important resource of socio-economic development;
- transformation of the information industry into the most developed, profitable and prestigious sphere of production;
- the emergence of a developed market infrastructure for the consumption of information and information services;
- increasing informatization of society using information and communication technologies;
- Creation of a global information space, which ensures effective information interaction of people, their access to world information resources and the satisfaction of their needs for information products and services.

In the information society, one of the fundamental factors influencing its development is information and communication technologies. Their revolutionary impact concerns the way people live, their education and work, and the interaction between government and civil society. They enable individuals, firms and communities to more effectively and creatively solve economic and social problems.



In an information society, not only production is changing, but also the whole way of life, the system of values, the importance of cultural leisure in relation to material values is increasing. A person is required to be creative, the demand for knowledge increases.

Thus, we can say that the rapid development and dissemination of modern ICT brings about dramatic changes in the information sphere at the global level. Their revolutionary impact concerns state structures and institutions of civil society, economic and social spheres, science and education, culture and way of life of people.

In the Okinawa Charter for the Global Information Society (2000), it is indicated that ICTs are becoming an important stimulus for the development of the country and the world economy [2]. Consequently, information and communication technologies are an important factor that ensures the functioning of the world markets for capital and labor, information and knowledge.

RESULTS AND DISCUSSION

Thus, in the information society, the professional activity of any specialist, and the managerial staff, in particular, has a pronounced informational character, and the ultimate success of this activity will depend on the success of the specialist's functioning in the so-called "environment of modern information and communication technologies."

The school is a highly organized system, and today it is impossible to manage a school relying only on traditional methods. School principals can no longer implement their directives and decisions using only power. Leadership of a modern school that implements innovative activities requires resolving the boundaries between the competences and responsibilities of individuals and highlights the interaction of all.

It is the school that lays the foundation for the future of the Republic of Uzbekistan, not a country that supplies raw materials, but a country of HIGH technologies. The school system today is rightfully the largest and most complex social system, and is a fundamental stone of the social, economic, cultural and political development of society.

A creative ICT-competent school principal must create a system of transformation and renewal of all factors that effectively operate in the system of management, teaching and learning. Changing part of the system, without changing other parts, cannot lead to positive and influential changes. There are many examples when changes were made only in the means, physical and computer equipment, without a change in the thinking of the leadership and teachers. As a result, despite these changes in add-ons, and despite temporary changes in programs, teaching materials, unfortunately, problems still remain.

CONCLUSIONS

The research showed that the basic component of the professional competence of the school principal is competence in the field of creative use of modern ICT.

Advanced pedagogical experience that allows the leader to bring his educational institution to a worthy place in the market of modern educational services is the result of the creative activity of the school director with elements of novelty, aimed at fulfilling the urgent tasks of education and training. School principals have not only creativity, but also achievements. Elements of creativity distinguish a director in all areas of his activity, since it is the creative approach that allows them to master new types of management activities through the introduction of creative strategic strategies.

In this study, we consider ICT competence as one of the main components of the professional competence of a school director.

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CONSTRUCTION OF A MATHEMATICAL MODEL OF THYRISTOR DEVICES IN THE MATLAB PROGRAM

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ABSTRACT

This article discusses the construction of mathematical modeling of thyristor devices in industrial enterprises.

KEYWORDS: control unit, PI, SU, GTU, HELL, Simulink, Oscilloscope.

INTRODUCTION

It is known that control systems for electric drives are complex production facilities of the cybernetic type, all elements of which are involved in a single production process, the main specific features of which are the transience of phenomena and the inevitability of damage of an emergency nature. Therefore, reliable, optimal and selective construction of a mathematical model of electric drives of industrial enterprises is possible only with automatic control [1]. For this purpose, mathematical modeling of electric drives in the electric power industry is used.

MATERIALS AND METHODS

To build a mathematical model of electric drives, we used the MATLAB Simulink program. The issues of design and modeling of asynchronous electric motors remain very acute, since the requirements for the performance of modern electric motors have increased significantly. To solve such

problems, computer-aided design systems are often used.

However, most of the models created in them are not interactive [2]. In this regard, the use of the latest software products, in particular, the software module in the Simulink environment of the Matlab program, is of considerable interest. This software module is a modern tool for designing and modeling various types of electrical machines.

RESULT AND DISCUSSION

This article is devoted to the construction of a mathematical model of electric drives of hydroelectric stations and operating modes of a gas turbine drive in the Simulink environment of the Matlab program. For laboratory analysis, the results were taken of constructing a mathematical model of hydraulic engineering installations, and all aspects of the electric drive were considered.

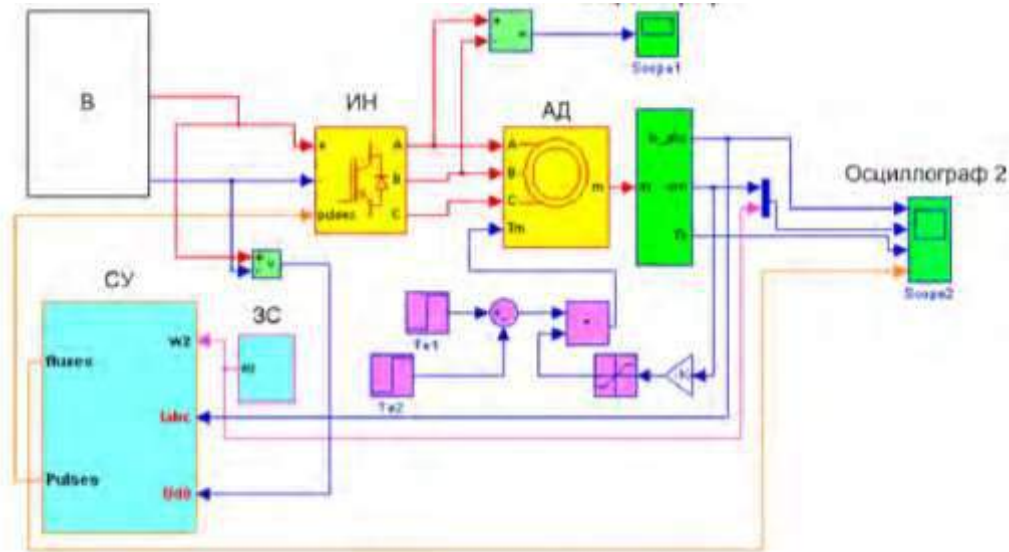


Fig.1. Mathematical model of the drive in the Simulink environment of the Matlab program.

B - Voltage rectifier (active rectifier, in the case of an excavator or a diode multiples rectifier, in the case of a dump truck); IN - voltage inverter; HELL - asynchronous motor; SU-control system of the electric drive.

In the mathematical description of the simulated engine, the following assumptions were made:

- There are no losses in steel;
- Phase windings are shifted by 120 °;
- Constant value of the air gap;

- The real distributed winding is replaced by an equivalent concentrated one, creating the same magneto motive force;

- The machine has a symmetrical rotor;
 - Magnetic fields and magneto motive forces of the windings are distributed along the circumference of the air gap according to a sinusoidal law.

The mathematical model of an asynchronous electric motor is described by a classical system of fifth-order differential equations:

$$U_{s1} = \frac{d\psi_{s1}}{dt} - \psi_{s2} \omega_k + R_s I_{s1}$$

$$U_{s2} = \frac{d\psi_{s2}}{dt} - \psi_{s1} \omega_k + R_s I_{s2}$$

$$0 = \frac{d\psi_{r1}}{dt} - (\omega_k - p\omega) \psi_{r2} + R_r I_{r1}$$

$$0 = \frac{d\psi_{r2}}{dt} - (\omega_k - p\omega) \psi_{r1} + R_r I_{r1}$$

$$M_d = \frac{mp}{2} |\psi_s \times i_s|,$$

The control system structure (Figure 2) contains a speed controller, a coordinate calculation unit, and DTC implementation blocks.

The control system includes a speed controller, a coordinate calculation unit, DTC, implementation blocks. Digital speed controller PI - type with parameters $K_r = 2000$, $K_u = 10000$. The width of the hysteresis loop of the flow controller is \pm

0.02. The width of the hysteresis loop of the torque regulator is ± 30 . In the S - “DTC” function, based on the sector number and the combination of signals of the relay controllers, the address of the voltage vector selection is formed. At the received address, a number corresponding to the required key position is extracted from the array [5].

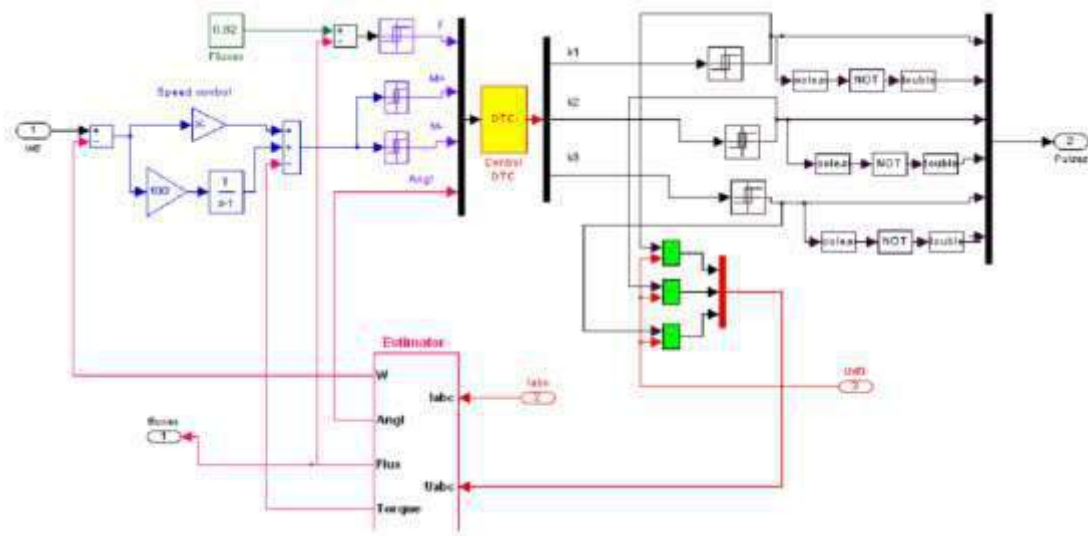


Fig.2. Control system model diagram.

The control system includes a block for calculating coordinates of an incomplete order. The coordinates are determined by the measured motor currents and the selected voltage vector. In the block, the projections on the fixed axes of the stator winding flux linkage vector and its module, the projections on the fixed axes of the stator winding flux link vector, the rotational speed of the rotor flux link vector, the rotation speed of the motor shaft, the angular position of the rotor flux link vector, and the electromagnetic moment are calculated.

In well-known DTC schemes, the sector number is determined by the angular position of the stator flux linkage vector without taking into account the position of the rotor flux link vector. The location of these vectors in different sectors leads to increased pulsations of the moment. The simulation results showed that the sector is better determined by the rotor flux linkage vector.

The control system with DTC provides fast, direct control of the torque and maintaining the stator flux linkage at a given level in asynchronous machines. The system must necessarily contain a unit for calculating the coordinates of the drive. In this case, the spatial stress vector is directly calculated based on the mismatch in the moment and flux linkage without the use of customizable regulators. The only adjustable controller is the speed controller. Setting the relay controllers consists in setting the desired switching frequency of the inverter keys.

The mathematical model was tuned in the first case - according to the data of the excavator stroke engines. According to the results of studies on a mathematical model, diagrams of the operation of electric drives with an asynchronous motor, stroke and lift motors of the excavator in dynamic drive

operation modes were obtained. Modeling was carried out under the maximum load.

To increase the performance of hydro technological complexes, it is advisable to switch to the use of a non-contact asynchronous electric drive with a frequency converter due to the simplicity of its maintenance and ensuring the necessary operating modes of the main drives.

CONCLUSION

The system performance at rated load corresponds to the declared values, and the mismatch between the speed reference and the actual speed is no more than 5%, which indicates the possibility of using relay-pulse control algorithms using the laws of direct control of the torque of an asynchronous motor as part of the control systems of hydraulic systems.

The construction of a mathematical model of the electric drive will give us a huge advantage for monitoring and controlling GTU electric drives and the use of pulse-relay control algorithms when generating the motor supply voltage provides a higher speed compared to vector control algorithms, limits torque overshoot and thereby reduces dynamic loads.

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THE IMPACT OF AGROTECHNICAL MEASURES ON THE DAMAGE CAUSED BY PLANT CONFECTIONERY IN THE SOUTH OF UZBEKISTAN

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ABSTRACT

According to the results of the four-year study conducted, agrotechnical measures were found to have a significant effect on the number of candies in 100-unit plant and the damage caused.

When the number of seedlings of goose was taken care of 90-100 thousand/ha, the number of candies was 16.9 units on average, when the number of seedlings was 110-120 thousand/ha, the number of candies was 33.5 units and when the seedlings were taken care of 130-140 thousand/ha, the number of seedlings was 8.6 and 17.1. Watering the goose between the rut was observed that the number of candies from each rut to irrigation was less than 38 pieces, watering the goose 1-2 times in the season was observed to be less than 3-4 times the number of candies from 19,7 pieces. It was found that in favorable terms of the porcine to be less than 15.0 grains in comparison with the field in which the batter was late, the batter was late or the batter was not held at all. Similarly, it was also observed that sow herd losses in March, April-May in late terms than sow in late terms, were 15-18 percent lower. Prophylactic measures were also observed to reduce the number and harm of candies by at least 10-15 percent.



KEY WORDS: *Plantain confectionery, their number, the damage caused, the duration of planting, watering rut spacing, number of watering 1-2 and 3-4 times, methods of grinding the goose, use of ofojojen, vs the thickness of planting the goose.*

INTRODUCTION

According to official data obtained, insects, diseases and weeds cause at least 20-30 percent damage to the crop of the goose, in underdeveloped countries 40-50 percent, even more. There are more than 20 species of semi-rigid wings, 13 of them are harmful. Plantain beetles are stinging insects, which, when injuring the goose, are spilled shona, flowers and small breasts. Damaged large breasts change shape, weight decreases, fiber quality decreases, and as a result, the cotton crop decreases. Plant beetroot candies with alfalfa, millet and hemp candies cause strong damage to the corn crop. The region of surkhandarya is a very hot region, the winter season will not be cold and the most favorable conditions will be created for the reproduction of insects. Since the region borders on foreign countries, most insects penetrate through Iran, Afghanistan and Turkey. In the latter years, vegetative candies in the districts of the Surkhandarya region have had a strong impact on the crop since 2005, especially in 2015-2019 years, and the cotton crop in the region has decreased and its size the subject of studying the effectiveness of preventive and agrotechnical measures against plant-borne candies is an innovation in this sphere.

The study of the effectiveness of agrotechnical measures against candies is the most urgent problem.

MATERIALS AND METHODS

Measures to combat plantain candies have not been sufficiently studied. Semi-rigid winged insects are widely distributed to all regions of the world, and agricultural crops cause strong damage to their growth, development and yield. More than 20 species of plant beet have been identified in the field, 13 of them are harmful, and the rest are useful species [Khodjaev 2016]. Among the semi-rigid wings, the Mazidae family occupies a special place. Representatives of this family have stuck-sucking oral organs, damage the mucous membranes, beetroot, legumes, fodder crops, fibrous plants, oilseed, tobacco, grain, melons, medicinal fruits, salivary liquids of sugars are affected by plant tissues, which leads to a violation of metabolism and membrane permeability. This leads to a change in plant tissues. Harmful insects are very mobile, they fly and spread over a large distance, so it is better to use prophylactic measures, identifying the places of reproduction of candies.

Out of the Alfalfa crop, the Beda beet strongly harms the larvae, and the image and other seeds of legumes. It was found that alfalfa beet, in

addition to leguminous plants, causes strong damage to the corn crop and the seed beet crop. The strong damage of alfalfa to the corn crop was the first to cause, I.Vasiliev (1914) identified in the conditions of the Fergana Valley. It is I. who discovered that the larynx is damaged by a flying Alfalfa from an older age. Vasiliev (1914, 1915 and 1974), Zavadovsky K.N.Y.(1955), N.T.Zaprametov (1952), who said the idea that the larvae of the I-II generation of green eyes hurt. Semi-solid-winged candelabra can be found in insects (Candelabra), which are insectivorous to I.N.Y.Krichenko (1951), Puchkov and V.T.Puchkova (1965) year was given a great place in scientific works.

For many years, scientific research work on candies has not been conducted, but only from 2016 Year D.Zire "Lost In Test Match T.Khodjaev, N.Sattorov, D.Musaev (2018), B.M.Khalikov, M.Tadjiev, N.N.Y.Opened, Sh. H.Abdimuminov, Sh.H.Xalmuminov, R.Khujanazarov (2019) has been carrying out a wide range of research work on this and has made clear conclusions. Foreign scientists also conducted research studies on the strong damage of candies to the plant, especially those who observed that exchanging plantain reduces diseases and insects [Vinber, 1969; Volger B, 1979]. They recommended exchanging crops in the fight against pests of pigs.

DISCUSSION AND RESULTS

Research methods production testing and all observational calculations in experiments and researches of the Research Institute of cotton growing of Uzbekistan "Methods of Providence of field experiments" (1961), "methods of agrotechnical micro - biological and melioration in polyfous cotton plants" (Union of NIHN, 1963), "Methods of agrochemical analyses of soils and plants in Central Asia" (Union of NIHN, 1963). "Methods of field experiments with grain crops" (1971)

This research work was carried out in 2017-2020 years on four districts and 16 farmer farms of the province. In the districts of Muzrabot, Kizirik, Kumkurgan and Denov, scientific research works were carried out in 4 farmer farms in each district. In these farmer farms, different planting thickness of the goose, irrigation number 1-2 and 3-4 times, methods of sowing, dividing the goose by the rut, and irrigation from each rut, the growth development and yield of the varieties of the goose in agrotechnical activities such as planting periods, the number of candies and the damage caused to the goose were studied. For experiments, a field of manure was allocated from 1-1, 5 hectares of each



farmer's farm, and observation and research were conducted. In all experiments, observations were conducted on three repetitions. This article describes the results of studies conducted in the districts of Muzrabot and Kizirik in the south of the region. Farmers in the district of Muzrabot are planted in the farms of Bukhara-102 of medium-fiber Goose and Iolatan-14a-I of fine-fiber Goose and Bukhara-102 of goose in the district of Kizirik. The effect of agrotechnical measures on the growth, development and damage to the gums is presented in the table.

When the army of thin-fiber goose in the farmer farm "new prosperous Luchini" in muzrabad district was taken care of by iolatan-14a-I navi from Turkmenistan leaving 120 and 140 thousand/ha of Bush, when monitoring was carried out on the number of candies in 100 plant 21 pieces per 100 thousand/ha of Bush were left, 31 pieces per 120 thousand/ha of In the farmer farm "Yangiabad mirishkori" in the district of muzrabat, Bukhara 102 varieties of medium-fiber Goose were planted, and at the most favorable times of the goose were observed on the number of candies in the late transfer or at least 100 plants, according to the results of the observation, it was found that 21 pieces when the chilpish was carried out and In this district, when the goose was watered 2 times during the growth in the "Sardorbek" farmer farm, the number of beetles in 100 plants was 15 pieces and in the "Mamatali Kholboy" farmer farm, when the goose was watered 4 times during the growth period, it was determined that 47 beetles damaged the goose.

When Buxoro102 varieties of medium-fiber sheepskin were taken care of, 14 pieces were taken when sheepskin was most comfortable and 34 pieces were taken when sheepskin was very late.

In the "Shokbarakat" farmer farm in kizirik district, when the Bukhara-102 varieties of Goose were taken care of, the number of Bush in the goose was 100-120 and 140 thousand/ha when the norm was taken care of, the number of candies in 100 plants was 12,17 and 29 grains.

In this District, 102 varieties of Bukhara were taken care of in "Ahror 2017" farmer farm, when the goose was watered 4 times during the growth period, the number of candies in 100 plants was 35 pieces and in "Oyday Yangiabad" farmer farm the number of candies when the goose was watered 2 times during the growth period was 16 pieces.



Table
Periods of determination of the number of plant sugars in the conducted agrotechnical activities

T.p	District name	Name of farmer farms	Head of farmer farms FN, S.N	Grandchild	VARIOUS	Periods of determination of the number of candies in 100 plants			
						28.06.18	17.07.18	09.08.18	28.08.18
1	Muzrabot/d	Yangiobod lochini	Muzrabot Sardorbek	Iolatan- 14A1	90-100минг/га	1	2	14	21
					110-120 минг/га	2	3	22	31
					130-140 минг/га	4	15	30	45
		Muzrabot Sardorbek	Dustqobilov Olim	Iolatan - 14A1	1-2 watering times	6	9	15	15
		Yangi obod madadkor	Boybulov Xolmurod	Бухоро-102	Chilpish is not transferred	7	4	15	21
					Chilpish is not transferred	9	8	24	35
		Mamataliyev Xolboyev	Yusupov Xolboy	Iolatan - 14A1	3-4 watering times	1	25	22	47
2	Kizirik/d	Bektepa Mersaj	Qoraboev Ilxom	Bukhara -102	Chilpish is not transferred	9	11	9	14
					Chilpish is not transferred	16	22	15	34
		Shoxbarakat	Muxammadiyev Olim	Bukhara -102	90-100минг/га	1	5	12	12
					110-120 минг/га	1	9	21	17
					130-140 минг/га	2	14	31	29
		Oydiyoy Yangiobod	Xasanov Maxmud	Bukhara-102	1-2 watering times	7	8	17	16
		Axror-2017	Rajabov O'roq	Bukhara -102	3-4 watering times	29	14	22	35



CONCLUSION

In conclusion, it was found that different agrotechnical measures applied to the gauze affect the number and harm of candies in 100 units of the plant differently. If the puncture of the larynx was accompanied by oyojogen in the most favorable terms, the number of candies and the damage caused by the larynx compared to the latetirib transferred field was observed to be 15-18 percent less.

During the growth period of the goose, it was found that twice watering can reduce the number of candies and the damage caused by it by 10-15 percent compared to 4 times watering. It was proved that watering the goose between the rut and the rut reduces the number of candies and the damage caused by it by 15-17 percent compared to irrigation from each rut. Similarly, it was found that the storage of normative seedlings (up to 100 thousand/ha) in the fields, the number of loaves (up to 120 140 thousand/ha) and the damage caused by it significantly reduced compared to the number of loaves left.

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THE ROLE OF PEOPLE'S DIPLOMACY IN UZBEKISTAN'S FRIENDLY RELATIONS WITH SOUTH KOREA AND JAPAN

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ANNOTATION

Today, research on the process of establishing relations and foreign policy of Uzbekistan with each partner country is also relevant to the science of history. The importance of scientific and theoretical study of the relations of people's diplomacy with the Far East is to focus Uzbekistan's foreign policy on practical and mutual interests, to intensify mutual political dialogue, expand the country's export potential, attract foreign investment, advanced technologies and scientific achievements. - development of humanitarian ties, implementation of initiatives to expand the flow of tourists to Uzbekistan, as well as the establishment of systematic cooperation with Uzbeks and compatriots abroad.

KEY WORDS: *mutual trust, respect, friendship, strategic partnership, people diplomacy, The League of Friendship, the Great Silk Road, literature, art, painting, cultural events, tourism, cultural diplomatic relations,*

DISCUSSION

Uzbekistan is geographically far from South Korea and Japan, but they share a common goal of peace and development. There are many similarities and commonalities between the Uzbek and Korean peoples. Linguistically, we are united by the Altaic language family, while regionally we are united by one continent, one region - Eurasia and the East. Historically and culturally, many similarities can be seen [1]. History has shown that our peoples have been intertwined since the time of the Great Silk Road. In particular, the murals kept in the Afrosiyob Museum in Samarkand reflect the ceremony of reception of the ancient Korean-Chosun ambassador by the ruler of Samarkand in the middle of the 7th century [2].

Japan is also an important and reliable partner of Uzbekistan. The existence of trade, economic and cultural ties between the Uzbek and Japanese peoples through the Great Silk Road in history has been confirmed by scientific research. Cooperation has been strengthened not only through trade through ancient and preserved cities such as Samarkand, Bukhara and Khiva, which are included in the UNESCO World Heritage List, but also through cultural and humanitarian exchanges through other ancient centers of civilization - Nara and Kyoto in Japan. Eight centuries ago, the great scholar Mahmud Kashgari, in his *Devonu lug'atit-turk,*

mentions the name of the Sunrise country, calls it "Jabarqa", and first describes the map of the country.

From the second half of the 19th century, Japan began to take a serious interest in the Central Asian region. In 1880, the Japanese diplomat Nishi Tokudziro traveled around the country. He visited Tashkent, Samarkand, Bukhara and the Fergana Valley. In Bukhara he met with Amir Muzaffar. This event was one of the first official contacts of the Japanese with Muslim countries. In 1886, Nisi Tokudziro's "Travelogue of Turkestan" was published in Japanese. The fact that Japanese researchers such as Yasumasa Fukushima, Kazuo Otani, Masaji Inoue, Zuicho Toshibana traveled to Central Asia in the late 19th and early 20th centuries testifies to the high interest of the Japanese people in our country. The Scientific Library of the National University of Uzbekistan has a large collection of books and magazines published in Japan in 1927-1941. After the establishment of cooperation between Uzbekistan and Japan in the field of silkworm breeding and mulberry in the 1930s, a group of Uzbek experts visited Japan and studied the advanced Japanese experience in this field and introduced it in the country [6]. Thus, the relations of people's diplomacy, which for a long time defined the common mentality of the Uzbek, Korean and Japanese peoples, have been developing to this day.

Today, the relations between Uzbekistan and South Korea are based on mutual trust and respect, friendship and strategic partnership. On December



30, 1991, the Republic of Korea was the first country in the Asia-Pacific region to recognize the independence of the Republic of Uzbekistan. After the establishment of diplomatic relations between Uzbekistan and the Republic of Korea in January 1992, extensive cooperation was established in the political, economic and cultural spheres[7].

Uzbekistan considers strengthening cooperation with the Republic of Korea, which has strong economic, industrial and intellectual potential, as one of the strategic issues. As a result, 16 summits of the leaders of the two countries (1992, 1994, 1995, 1999, 2005, 2006, 2008 (twice), 2009, 2010, 2011, 2012, 2014, 2015, 2017, 2019) were held [8].

The state visit of the First President of the Republic of Uzbekistan Islam Karimov to the Republic of Korea on June 19, 1992 laid the foundation for economic, trade, cultural and technical ties between the two countries. It was during this visit that the Declaration on Interstate Relations and Cooperation between Uzbekistan and South Korea was signed. Long-term plans for cooperation in the fields of culture, education, media, travel, sports have been identified [9].

Following the state visit of the President of the Republic of Uzbekistan Sh.M.Mirziyoyev to the Republic of Korea on November 22-25, 2017, a joint statement on comprehensive deepening of strategic partnership was signed, more than 20 interstate, intergovernmental and interagency agreements, as well as 64 sets of documents were signed. The total value of cooperation between the two countries exceeded \$ 10 billion in trade, economic, investment, financial, technical and other fields. Billions of dollars of agreements, new investment projects and cultural cooperation are a strong guarantee of the people's diplomatic relations between the two countries and are the result of today's friendly relations.

As a result of the state visit of the President of the Republic of Korea Moon Jae-in in 2019, the Joint Declaration on Separate Strategic Partnership between Uzbekistan and the Republic of Korea, promotion and mutual protection of investments between governments and ministries, study of free trade agreement, peaceful space exploration Cooperation in the field of technology and innovation, the establishment of the Uzbek-Korean Center for Cooperation in Health and other documents were signed [11]. Today, more than 170 interstate, intergovernmental and interdepartmental documents adopted between the countries serve as a solid foundation for cooperation. The Joint Declaration on Strategic Partnership, signed in 2006, and the Joint Statement on the Comprehensive Deepening of Strategic Partnership, adopted in 2017, are a testament to the commitment, friendship and mutual trust of the parties [12].

Japan recognized the independence of Uzbekistan on December 28, 1991, and diplomatic relations between the two countries were established on January 26, 1992. [13] In 1993, the Embassy of Japan was opened in Tashkent, and in 1996, the Embassy of the Republic of Uzbekistan in Tokyo was opened. Since then, the countries have been actively cooperating in various fields, including politics, economy, culture, humanitarian exchange and others.

The First President of the Republic of Uzbekistan I.A Karimov visited Japan three times in 1994, 2002, 2011[15], and the President of the Republic of Uzbekistan Sh.M.Mirziyoyev paid an official visit to Japan in December 2019. In response, in August 2006, Japanese Prime Minister J. Koizumi, in October 2015, S. Abe visited Uzbekistan.

During the visits, political dialogue intensified and cooperation between the two countries reached a new level. Joint Statement between the Republic of Uzbekistan and Japan of May 17, 1994, Joint Statement of Friendship, Strategic Partnership and Cooperation between the Republic of Uzbekistan and Japan of July 29, 2002 and Joint Statement of October 25, 2015 on Deepening and Expanding Strategic Partnership between Uzbekistan and Japan are the main documents regulating the relationship [17].

During the visit of President of the Republic of Uzbekistan Shavkat Mirziyoyev to Japan in December 2019, a number of agreements were reached in political and parliamentary relations, trade and investment, innovation, small and medium business, science and education, health, culture and other areas of cooperation. The signing of the Joint Statement was another important step in taking multifaceted cooperation to a qualitatively new level. More than 160 agreements signed today serve as a solid legal basis for the development of relations between Uzbekistan and Japan [18]. The official visit of the leaders of the two countries and the high-level Uzbek-Japanese talks have been a guarantee of friendship and interstate relations.

Inter-parliamentary relations also play an important role in the development of mutually beneficial relations between Uzbekistan and South Korea and Japan, based on the principles of high trust and mutual respect, as well as in people's diplomacy.

In 1995, the Korea-Uzbekistan Parliamentary Friendship Association was established in the National Assembly of the Republic of Korea within the framework of inter-parliamentary cooperation. Since 2005, the Inter-Parliamentary Friendship Group of the Parliament of the Republic of Uzbekistan has been cooperating with the Parliament of the Republic of Korea.

The League of Friendship with Uzbekistan was established in the Japanese parliament and the Liberal Democratic Party of Uzbekistan-Uzbekistan Friendship League was established in 2002 at the



initiative of prominent political figures Taro Aso, Yoshiro Mori and others. is operating [21].

The countries have also established constructive cooperation within international organizations and institutions. Uzbekistan welcomes the peace-loving policy of the Republic of Korea aimed at strengthening mutual understanding on the Korean Peninsula, which is of great importance in ensuring global security. In turn, the Republic of Korea supported the resolutions "Strengthening regional and international cooperation to ensure peace, stability and sustainable development in Central Asia" and "Enlightenment and Religious Tolerance" adopted by the UN General Assembly in 2018 at the initiative of Uzbekistan.

Uzbekistan supports Japan's initiatives in foreign policy, strengthening the regional and international security system, as well as solving environmental problems. The parties are also actively developing multilateral relations within the "Central Asia + Japan" dialogue mechanism [22].

The Central Asia + Japan Dialogue plays an important role in Japan's cooperation with Central Asian countries, including Uzbekistan. The dialogue was established in 2004 at the initiative of former Foreign Minister Yoriko Kawaguchi. The main feature of this dialogue is that, in addition to the meetings of foreign ministers, it provides different public-level platforms for discussions at different levels. For example, innovative mechanisms such as the Grand Public Meeting, the Tokyo Dialogue, and the Expert Meeting are drawing the attention of the international community, the European Union, South Korea, and the United States to the dialogue platform with a similar approach. The principle of dialogue "Central Asia + Japan" is fully consistent with the priorities of good neighborly policy and people's diplomacy of Uzbekistan. However, this dialogue area could also lead to an increase in Japanese influence in the region. To prevent such consequences, it is necessary to accelerate continuous cooperation and equality-based communication through public diplomacy. Every year the program of cultural events expands, including Korean and Japanese films, art exhibitions, concerts, performances by Korean and Japanese artists, as well as regular presentations of Uzbek culture, art and tourism potential in major cities and regions of South Korea and Japan. A good example of this is the opening of permanent Uzbek houses of culture in Osaka, Fukushima and Maebashi with the support of a number of social organizations in Japan [24].

During the years of independence, it has become a tradition for Uzbek culture and art figures to demonstrate their skills in South Korea and hold Korean Culture Weeks in Uzbekistan. In particular, in the framework of such weeks in 1998 and 1999, an exhibition of Korean books and photographs, an exhibition of Korean artists and painters was

organized in Tashkent[25]. In 2009-2010, the National Museum of Korea hosted an exhibition of ancient art of Uzbekistan. It features unique historical exhibits confirming the age-old cultural and spiritual ties between the two countries.

In 2012, 26 cultural events were organized to mark the 20th anniversary of the establishment of diplomatic relations between Uzbekistan and Japan, including the Japanese Film Festival, the Tohoku Restoration Photo Exhibition, the No and Kogen Japanese Theater, and the INSPI Acapella Vocal Ensemble Concert.

In recent years, South Korea has hosted cultural evenings dedicated to the art of Uzbekistan, and our country has hosted South Korean Culture Days. In particular, the Korean Week 2015, which took place on October 19-24, 2015 in Tashkent, Navoi and Urgench, [28] and the Korea Festival 2017, which took place in Tashkent in 2017, are a continuation of this work.

The public of the countries has been cooperating for many years in dozens of fields of science, such as literature, art and painting.

One of the most famous representatives of Japanese literature is Yasusi Inoue. His historical works "Tiled Tempo" and "Journey to Samarkand", Man Inoue's "An Evening in Tashkent" tell about the common culture, traditions and way of life of the Uzbek and Japanese peoples. Over the past period, about 30 novels, short stories, poems and short stories by famous Japanese artists such as Yosie Hotta, Kobo Abe, Yasunari Kawabata, Ryunosuke Akutagawa, Takeo Arisima, Masudzi Ibuse have been published in Uzbek.

In turn, in Japan, the works of our writers, such as M. Zamakhshari, A. Navoi, Z. Bobur, A. Fitrat, A. Qodiriy, Sh. Rashidov, Zulfiya, Ramz Bobojon, have been translated into Japanese and published several times. serves to further strengthen the literary ties between [31].

Over the years, Japanese and Uzbek scientists have established cooperation in scientific and cultural spheres. In particular, fruitful cooperation has been established in the fields of history, linguistics and archeology. Many hard-working Japanese scholars, such as Itaro Komatsu, author of the Uzbek Language Handbook, Uzbek Conversation, and the Uzbek-Japanese Dictionary, and Professor Eiji Mano, who translated Zahiriddin Muhammad Babur's "Baburnoma" into Japanese with scientific commentary, have established scientific ties between the two nations. individuals who have made significant contributions to the development of cultural relations [32].

Ikuo Hirayama, an internationally renowned artist, scientist and public figure, has played a significant role in cultural and humanitarian relations and public diplomacy between Uzbekistan and Japan. In his works "Ruins of Turkestan", "Bukhara",



"Central Asia" a certain philosophical and poetic essence of the peoples who passed through the caravan route was expressed with great clarity and ability, embodied the powerful spirit of the peoples, his works influenced the minds and spirits of millions of people. gave them an opportunity to get acquainted with the great history of ancient Uzbekistan. The establishment of the Uzbek-Japanese scientific and creative center "International Cultural Caravanserai" named after I. Hirayama in Tashkent in 2002 in his memory is another confirmation of our mutual cultural closeness [33]. The results of Ikuo Hirayama's public and charitable activities allowed him to overcome the existing boundaries and distances between the Uzbek and Japanese peoples, and his fruitful work became a standard of tolerance and people's diplomacy.

In turn, a number of exhibitions of works by Uzbek artists are being organized in Japan under the auspices of the Academy of Arts of Uzbekistan. In particular, the works of the People's Artist of Uzbekistan, Rishtan potter Ibrahim Rakhimov, and the paintings by Syrdarya artist Anarkul Boybekov are among the largest collections of exhibitions in Japan [34].

Cooperation between the scientific and academic circles of the two countries is developing positively. In particular, in the field of archeology, strong scientific cooperation has been established between universities and research institutes in Uzbekistan and Japan. In this regard, the famous Japanese archaeologist, anthropologist, well-known historian and ethnographer Kato Kyuzo (May 18, 1922 - September 11, 2016), who made a great contribution to the discovery of the unknown pages of Central Asia, noted the worthy place in the diplomatic relations between the two peoples. the transition is appropriate. Professor K. Kato is one of the Japanese scientists who has made an invaluable contribution to bringing together not only one country but also the peoples and cultures of the world with his scientific research activities. Kato Kyuzo widely promoted the history of Uzbekistan in Japan. K. Kato became not only an archaeologist, a great friend of Uzbekistan, he quickly studied local traditions and the Uzbek language. "I am Japanese, I call Uzbekistan my second homeland, and I am proud to be an honorary citizen of this country," - said the scientist, who for almost forty years conducted important scientific research in our country.

All this shows how important the cooperation between the two countries is. After all, this cooperation serves as a solid scientific basis for the discovery of new aspects of human history and culture.

Tourism plays an important role in Uzbekistan's people's diplomatic relations with South Korea and Japan. Today, tourism is developing as a modern network of public diplomacy of the state,

which introduces itself to the world. The peculiarity of tourism diplomacy is that it can combine several branches of public diplomacy, such as cultural diplomacy, economic diplomacy, sports diplomacy and gastronomic diplomacy. In particular, in 2019, at the Hankuk University of Foreign Studies in Seoul, South Korea, the "Day of Uzbekistan" showcased the art, national customs and traditions of the Uzbek people, national wrestling and national cuisine [36].

Uzbekistan, with its ancient historical cities and cultural monuments, is especially attractive for Japanese tourists. In 2004, more than 3,000 Japanese tourists visited Uzbekistan, [37] and in the first eight months of 2018, the number of Japanese tourists visiting our country reached its highest level. Special attention is paid to the development of tourism in our country. President of the Republic of Uzbekistan Sh. An important step in this direction was the introduction of visa-free travel for up to 30 days for citizens of 7 countries, including Japan, in accordance with the Decree of Mirziyoyev dated February 3, 2018 "On additional organizational measures to create favorable conditions for the development of tourism potential of the Republic of Uzbekistan." In January-August 2018, more than 10,000 Japanese tourists visited Uzbekistan for the first time. That is an increase of 154% compared to the same period in 2017. In the summer of 2018, Japan's leading tourism corporation - HIS - published a rating of the most attractive countries for Japanese citizens in the summer. Uzbekistan took the second place.

The Uzbek, Korean and Japanese peoples have many similarities and national and spiritual values, dignity, diligence and kindness are common to all three countries. In turn, it is gratifying that these similarities are reflected in the friendship and cooperation of our peoples. Relations with friendly societies in South Korea and Japan give a lot to the people's diplomacy of Uzbekistan. as well as great opportunities for collaboration. Thus, a long-term relationship is one of the important foundations for maintaining the friendly and good relationship that has developed over time. Thanks to the consistent cooperation of Uzbekistan, confidence in South Korea and Japan as a real partner has been strengthened, despite its geographical location.

The analysis of the dynamics of relations between Uzbekistan, South Korea and Japan in recent years shows the positive results of bilateral partnership and multilateral dialogue. Uzbekistan considers South Korea and Japan to be an attractive, economically developed country with a peaceful foreign policy.

At the same time, over the years, a solid foundation has been laid for the further development of multifaceted and fruitful cooperation between nations. As mentioned above, over the years, relations between the countries have been developing



steadily in various areas, such as political, economic, cultural and humanitarian exchanges.

In short, the level of Uzbekistan's relations with South Korea and Japan is achieving unprecedented results in bilateral relations. However, when it comes to issues of public diplomacy, more specifically the interaction of public organizations between peoples, a lot of work needs to be done to intensify bilateral cooperation. First of all, it is necessary to consider possible areas for strengthening cooperation in accordance with the principle of people's diplomacy.

An important aspect of strengthening mutual understanding and cooperation between peoples is the development of people's diplomacy, the expansion of ties between the peoples of the countries. Uzbekistan takes this cooperation seriously. At present, Uzbek-South Korean and Uzbek-Japanese relations are reaching a new level. Broad horizons of cooperation are opening before us. This requires the intensification of cultural and humanitarian ties in order to strengthen traditional friendship and achieve greater success for the benefit of peoples and countries:

1) Expansion of cultural diplomatic relations of Uzbekistan with South Korea and Japan, which is an important branch of people's diplomacy. 2) Improving the organization and coordination of governmental and non-governmental organizations (including friendship societies). 3) Organization and holding of sports events, in particular: holding "friendship" competitions in various sports with Korean and Japanese youth and teenagers. 4) Cooperation in the field of education. Joint seminars and conferences between students of the two countries, organization of educational science Olympiads, increase of joint programs of Uzbek universities with South Korean and Japanese universities. 5) Cooperation in the field of medicine. Exchange of specialists: joint consultations, joint development of the latest methods of treatment of patients. Volunteering: Joint programs to help people with disabilities and people with disabilities. 6) Cooperation in the field of IT technologies. Establishing cooperation with research institutes of the two countries in the field of IT development.

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ANALYSIS OF THE PSYCHOLINGUISTIC BASIS OF TEACHING CHILDREN THEIR MOTHER TONGUE

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ABSTRACT

In relation to language teaching, developmental psycholinguistics and applied psycholinguistics play significant roles in formulating effective ways of teaching. Psycholinguistics theory covered the language development of humans, in accordance with humans physical and mental development. Mother Tongue Instruction has been a debatable issue since long. There may be two options in the medium of instruction: either to teach especially primary and preprimary schoolchildren in their own mother tongue or continue using second as the medium of instruction. This article tries to explore the perplexing debate in brief by analyzing the concept through different perspectives namely psycholinguistic, sociolinguistic, cultural, and pedagogical.

KEYWORDS: *psycholinguistics, physical and mental development, mother tongue, pedagogical.*

DISCUSSION

Language is a powerful means of communication which has enabled us to be more developed in comparison to other creatures so far found in the world. It is “the principal means used by human beings to communicate with one another” (Comrie, 2005). It is that divine gift for human being, “species specific to man” (Britannica, 2005), that has enabled us to enjoy the pleasure available in the world. Many children speak a home language that differs from the language of instruction in education programs. Research confirms that children learn best in their mother tongue as a prelude to and complement of bilingual and multilingual education. Whether children successfully retain their mother tongue while acquiring additional languages depends on several interacting factors.

One having competence in only in his or her mother tongue is likely to lose many things as the world has been more interactive. One who has broader communicative horizon feels more comfort in the globalized world than the one who is confined to his own mother tongue. Linguistic & Cognitive Development Language is “a sign-system fulfilling the cognitive and communicative functions in the process of human activity” (Dictionary of Philosophy, 1984). Encarta (2006) defines the term “cognitive” as the process of acquiring knowledge by

the use of reasoning, intuition, or perception. One of the critical concerns of schooling is whether linguistic development determines the cognitive development of a child. There is a debate among applied linguist and educational psychologist on the issue, nonetheless, we can claim that if the former has a beneficial role for the development of latter than mother tongue instruction becomes a crucial topic for our discussion.

Many children speak a home language that differs from the language of instruction in education programs. Research confirms that children learn best in their mother tongue as a prelude to and complement of bilingual and multilingual education. Whether children successfully retain their mother tongue while acquiring additional languages depends on several interacting factors. Studies show that six to eight years of education in a language are necessary to develop the level of literacy and verbal proficiency required for academic achievement in secondary school. To retain their mother tongue, children whose first language is not the medium of instruction must have: (1) continued interaction with their family and community in their first language on increasingly complex topics that go beyond household matters; (2) ongoing formal instruction in their first language to develop reading and writing skills; and (3) exposure to positive parental attitudes



to maintaining the mother tongue, both as a marker of cultural identity and for certain instrumental purposes (e.g., success in the local economy or global trade).

One of the psycholinguist, Bruner, 1966 (as cited in Slobin, 1974) suggests that the school is a very important determiner of the use of language to facilitate cognitive growth. In school children must learn to use language in the absence of immediate context. There are strong evidences to support linguistic development as not autonomous but a subordinate process of cognitive development. The work of Piaget's school (as cited in Slobin 1974, page 114) strongly suggests that language more often reflects than determines cognitive development. The general finding has been that special linguistic training will be of no avail to a child unless his level of cognitive development has already reached the point at which it can embrace the relevant concepts represented by words. Mother tongue instruction may have two connotations: teaching mother tongue itself and imparting formal education in the first language of students. But while we talk about the mother tongue instruction we take the second meaning of the term.

According to psycholinguistic perspective, the language that a child acquires at first in a natural setting can be termed as mother tongue. According to Noam Chomsky (1951) all children do have equal degree of competence in their mother tongue and they are perfect in using it. According to Encyclopedia Britannica (2005), every physiologically and mentally normal person has learned the main structure and basic vocabulary of his mother tongue by the end of childhood. Krashen (1973) in his critical period hypothesis maintains that language learning becomes easier and faster at the earlier ages. The period from birth to 11 years is thought to be fertile than later years (a theory popularly known as lateralization). One of the argument on the basis of above logic is that why not to use this fertile age and opportune our children with learning one or more languages that has gained an international status. The child who learns more language in his childhood is likely to get more benefit in this multilingual world than his compatriots who has left monolingual. A child acquires his or her first language without any formal instruction, even without knowing himself/herself that he or she is learning language.

Various researches have figured out that mother tongue instruction has positive influence in cognitive and linguistic development of children. Though the psycholinguistic perspective seems to support foreign language instruction as it bears some fruits because the students can learn second language easily at earlier stages looking through other perspectives it seems that mother tongue instruction is the best means of imparting education at primary level.

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SMALL TEA GROWERS: AN INDIAN PERSPECTIVE REVIEWS

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ABSTRACT

In Nilgiris, the Cooperative Factories had a positive impact in helping the small tea growers, particularly those with very smallholdings. At the same time, considering their financial and technological constraints, small-scale growers have expanded their holdings and their productivity over the years. It indicates that the smallholders were more enterprising in growing production than the vast estates whose production got stagnated. In areas where there are no cooperatives, the cooperative factories have ensured not only equal prices for their members but also other tea leaf suppliers. In these areas, the Cooperative Tea Factories ensured to pay the market prices to their members. This article is a summary of the studies conducted in India with particular focus on the influence of the restriction of small tea growers, the factors influencing tea growers to engage in tea cultivation, and the environmental effects of using chemical fertilisers and pesticides in the Small Tea Gardens.

KEYWORDS: *Small Tea Growers, constraints, environmental effects, chemical fertilisers*

INTRODUCTION

The Nilgiris District is one of Tamil Nadu's central districts with its larger portion of the mountain chain known as the Western Ghats. This district's entire economy is mainly dependent on tourism; most of the land surfaces are cultivated with crops such as tea, more specifically mountain-based agro cultivation. In India, there are tea plantations, Darjeeling in Assam, Terai & Dooars in Northern Bengal, Mysore and Coorg in Karnataka, Manjolai, Anamallais and Nilgiris in Tamilnadu. India's tea industry is geographically distributed mostly in North and South India. Tamilnadu, Kerala and Karnataka these three states in South India, produce a fair amount of Indian tea.

These southern states are very distinct from North India in their geographical location, climate, rainfall, etc. The Indian Tea Industry is giving major support for the primary labour force of India. The Nilgiris separately accounts for about 9000 hectares out of the a total of 172000 hectares of tea cultivation in South India, resulting in 30 million kg of tea production annually, which is almost 60 per cent of the total output of tea in South India (Shyamsundhar

k et al., 2004). In Nilgiris District, however, plantations account for only about 30 per cent of tea production. Small growers are responsible for the vast majority of production in the Badagas, a local agricultural tribal group.

SMALL SCALE TEA CULTIVATION IN SOUTH INDIA

Tea cultivation at a small scale level was initiated during 1930s in the Nilgiris of South India. Earlier the farmers of this region grew only vegetables like potato, carrot, garlic. But now, the following opportunities were given by small tea cultivation in South India, such as direct and indirect employment opportunities for about five employees per hectare, employment for women who specialise in hand plucking. Many small producers have used the production of tea as a family enterprise. South India's tea growth has brought economic revolution among the farmers with small land holdings. Their quality of living is significantly enhanced. South India's small tea growers could achieve the highest production and price in 1997, afterwards a significant drop in the price of tea leaves had occurred. Nilgiris



district has a total area of 2,54,055 hectares. The district includes six taluks viz. Coonoor, Gudalur, Kundah, Kotagiri, Ooty and Pandalur. In the Nilgiris district, approximately 50,000 hectares of land is cultivated tea of which small tea growers own nearly 30,000 hectares of tea plantation.

AIM OF THE STUDY

This research wants to find out the basic problems and prospects of the Small Tea Growers in Nilgiris. From the review of other literature it is very useful to fill the gap and what are all the important aspects to improve the industry and to suggest suitable strategy for the small tea grower's development and to use the unproductive land which in turn reduce the unemployment problem.

REVIEWS FROM INDIAN PERSPECTIVE OF SMALL TEA GROWERS

From the view of Kavitha and Jamuna (2014) and with the purpose to define the constraints of small-scale tea growers and to study the factors influencing tea growers to include tea growers in Nilgiris. The analysis was carried out in Nilgiris. With the aid of both open and close-ended questionnaires, primary data were collected from the small tea growers. The sample size is 150. In choosing the sample, the convenience sampling approach is used. Simple percentage analysis and the weighted average method were used for analysis. The study also brought out some ideas: how small tea growers need to increase the quality of tea. Small tea producers should reduce the cost of production and increase the efficiency of the worker through various reforms. It was suggested that some promotional campaigns be launched in abroad to raise awareness of the quality of Indian tea and added value items may also be made available to increase the market. M.G. Srinivasan (2016), in his analysis he reviews the problems of tea plantation workers in the district of Nilgiris, the working conditions of the plantation workers their wages, the maximum welfare measures available in the tea industry, the failure of trade unions in the planting sector to handle wage disputes and the creation of a good relationship between the planting and laboratory. Area sampling is applied and it is very similar to cluster sampling and is often spoken of when the total area of interest in Nilgiris District becomes high. The tea plantation workers in the district of Nilgiris are the target population. In this analysis, the total population taken was 245. The study concluded that small tea growers are offered very less and least beneficiary measures.

The objectives of Amsaveni, Ilavarasi and Gomathi (2013) were to determine the factor affecting the degree of job satisfaction of women workers working in tea estates in the Nilgiris District

of Tamil Nadu. The data was gathered from 300 respondents by using the convenience random sampling approach via a standardised interview schedule. To analyse the collected data, the methods used for analysis were applied, that is, simple percentage, chi-square analysis, and factor analysis. The study results showed that the factor analysis found that variables such as work allocation and peer relationships, encouragement and incentive, healthy climate, pay, and training and growth had a substantial effect on job satisfaction levels. Furthermore, four variables, i.e. Disability, Working Climate, Pay and Conveyance, and Job Timings, were also found to be the highly problematic factors that triggered discontent among the women workers employed in the tea estates. By Kaberi Borah (2013) in his research, he has made an attempt to explore the possibility of tea entrepreneurship and its effect on the state's rural economy. The growers' evolving small holding regime could be seen as a benefit for the Indian tea market. Setting up small production units will provide abundant opportunities for the self-expression of local rural youth and improve their material well-being. Younger generations in Assam are feeling dissatisfied because they have no guarantee for their education and development of other skills, talents and think they will be completely exploited. Therefore, encouraging these young people to take up the cultivation of small / medium-level tea will improve the rural economy's backbone and also curb social unrest. This will empower people of Assam to live a life with dignity. This sort of quiet economic movement by small tea growers in rural areas across Assam has helped to tackle the problem of unemployment aside from the environmentally friendly use of unproductive land. Therefore support for this socio-economic revolution should come from every quarter.

Prarthana Barua (2015) the purpose of her research is to provide a brief account of the problems faced by the state's small tea growers, drawing insights from the fields. The paper explores the growth of small tea growers in a few pockets of the Assam district of Sonitpur. It addresses the significant challenges facing growers in their process of consolidation. The shortcomings in organisational infrastructure and the lack of some regulatory supports have only accentuated the smallholder's reliance on several outside factors. On the one hand, the yield in their plantations is affected by unpredictable weather and lack of irrigation facilities, and the absence of price front regulations generates anxiety about selling their goods. In addition to these two collections of factors, such factors affect production costs and yields on the operational front. On the institutional front, it seems, assistance is mainly on the organisational side. In the research of Gupta and Dey (2010), they made a reasonably simple model for calculating productivity which is suitable for the tea industry. A case study is



presented, conducted in a tea sector in Assam, India, to evaluate the model's efficiency. The analysis shows that the model is systematic and meets the six measurement theory standards such as validity, comparability, comprehensiveness, timeliness, inclusiveness and cost-effectiveness. In addition, the analysis showed a proposed model which identifies the areas of low resource utilisation responsible for the tea industry's measured overall decrease in productivity.

From Suparna Roy (2011) research, she aims to examine the trend of the discovery of tea in Assam, India's first tea-growing province. The paper also sheds light on the chronological growth in the state of tea cultivation and the steps that the British government has adopted in this respect. The paper also examined the progress made, and the crisis faced by the tea industries. The research is based on secondary data and material sources which are obtained from various official and individual publications. Annual growth rates of compounds were calculated using the least-square process. They are modernising the tea industry with a shift in plantation methodology, enhancing the electronic tea auction. Deba Jyoti Goswami (2013), in her thesis on the environmental impacts of the use of chemical fertilisers and pesticides in the Assam Small Tea Gardens. Two small tea garden concentrated blocks of Golaghat district have been selected intentionally for the collection of primary data on the use of chemical fertilisers and pesticides, one is central development block, and the other is kalthaguri block. A questionnaire was prepared to gather randomly selected primary information from 100 sample respondents from each block. Gathering accurate information was taken utmost care. Whenever possible, secondary sources were also used. They are gradually turning the tea cultivation process into an ecological one that has an excellent international demand to save the earth and save human life and to preserve an environmentally friendly atmosphere for sustainable growth. In addition, in the case of the use of fertilisers and pesticides, proper education and training should be provided to small tea growers and staff. The government should entrust technological know-how to both growers and staff.

Debabrata Sen and Sudarshan Nath (2012) has investigated the role of small tea growers in the Assam district of Udalguri. The analysis is based on primary data. The data were collected with the aid of schedule cum questionnaire from the "Udalguri district." Small tea growers can be instrumental in the district's socio-economic growth. The standard of living of the people can be improved by growing the income of the people of the district; poverty can be reduced to a great extent. It is possible to introduce the anti-social elements of society to the mainstream line, and to a great time, it can address various social problems of the district. Realising the importance of

small tea growers in Assam's economy, the Tea Board, the State Government, the financial institutions linked to the tea industry's supply of finance, and small and large tea growers should make concrete efforts to develop the district's small tea plantations rapidly. From the view of Kakali Hazarika and Kaberi Borah (2013), the prospects of small tea cultivation in Assam as a source of self-employment are highlighted in their report. The research is based on secondary data and material sources which are obtained from various official and individual publications. The first generation tea growers who took up commercial tea cropping are a progressive step towards a new Assam social structure. This quiet economic movement by small tea growers in rural areas across Assam has helped to tackle the problem of unemployment aside from the environmentally friendly use of unproductive land. Help for this socio-economic revolution should come from every quarter.

Partha Ganguli (2014), in his study paper, he hypothesised the economic feasibility of small-scale tea cultivation, as has been proved to be the case. To emphasise the significance of a self-spring and grassroots variety of native entrepreneurship, the paper aims to examine this astonishing phenomenon of the escalating expansion of small tea growers in Assam. The article is based on the findings and experience of living in the tea plantation valley in Assam. The Dibrugarh district is covered with tea gardens, big as well as small. In addition, the field experience gained in gathering primary data over two decades during a research project has contributed to the writing of this article. The tea plantation industry is under immense pressure to pay the workers' salaries and other benefits. The constant tussle between the union of workers and existing firms will cause them to reconsider their willingness to stay in the tea estates. They can try to avoid the risks involved in the maintenance and operation of plantations and continue to sell made tea in the market.

The researcher M.G. Srinivasan (2016) has studied the problems of tea plantation workers in the district of Nilgiris. The Tea Plantation employees employed in the neighbourhood of Nilgiris are regarded as the target audience for the research. The primary data collection is carried out for review and interpretation by person-administered survey; the secondary data collected from different magazines and journals mentioned earlier related to the research report. Far less is charged to the Tea-Workers in the district and the least benefit initiatives are offered to them. The Tea-Plantation Industry must be brought under one Ominous Law, and a separate jurisdictional committee must be established to control it, on the other hand, the government must be allocated to conduct study, training, re-planting in this district. For the welfare of workers and helpful international methods, a separate board must be



formed, and comparison of the same must be implemented with immediate effect.

C.Pitchai and S.V. Akilandeswari (2016), In their study, the historical history within which the cooperative tea factories were started and the functioning of the cooperative tea factories were studied, and the degree of social and economic growth of the members of the small tea growers through the cooperative tea factories was explored. The researcher had personally visited four factories. Twenty-five members were randomly selected from each factory and a total of 100 members were contacted, and their views on the overall functioning and variety of services they used and the improvement in their livelihood status were ascertained. Primary and secondary data were both obtained, and basic statistical analysis methods were used. The shared trust between the member tea growers and the tea cooperatives can be witnessed to date. The subsistence of the cooperative tea factories depends on the scale of the members' support and successful use of the facilities. At the same time, factories can continue to deliver, as they do now, better services in the future. The founders should also really own the cooperatives and be active in all of the activities. Until the shared bond is restored, for both the participants and the cooperative tea factories, sustainability will not be a bother. Korrakot Y. Tippayawong, Punnakorn Teeratidyankul, and Sakgasem Ramingwong (2017), In their research, they used value chain analysis, the goal was to enhance the efficiency of a tea company. The definition of the value chain is to explain better the positions in the supply chain of each operation in the business. Supply chain management should recognise aspects of the activities in the supply chain that are influenced by internal and external influences. There were five main activities and four supporting activities in the case study. Using value chain analysis, these activities of the organisation have been analysed. For each block, the risk was determined using FMEA. The risk evaluation was used by FMEA to define manufacturing process vulnerabilities or shortcomings. The operation in the warehouse storage was chosen for enhancement for the case study. The proposed solution consists of a modern warehouse layout, where it is possible to increase the usage of space by 30 per cent. The linear programming method based on the fast-moving product principle was successful as a tool for calculating a suitable storage model that can accommodate future expansion and ordering of goods. Transport distances can be decreased by twenty-two per cent. S.Revathy (2016), in her research, tried to understand the essence of small tea growers' land ownership. To determine the variations in the profitability of own holding small tea growers and various tenancy bearing types. Using a questionnaire exclusively prepared for the study,

primary data is obtained. The study revealed that the numerous problems that tea growers face, such as lack of cooperation, unavailability of loans, lack of facilities for transport. The study also brought out some ideas as to how small tea growers need to increase the quality of tea. Small tea producers should reduce the cost of production and increase the efficiency of the worker through various reforms. It is proposed that some advertising campaigns be launched in order to raise awareness of the quality of Indian tea abroad, and added value items can also be sold in international markets.

CONCLUSION

Setting up small production units will provide more opportunities for self-employment and improve the physical and social well-being of local rural youth. The younger generation is dissatisfied because they have no guarantee that their schooling and other talents and skills are exploited. Hence, encouraging these youth to take up tea cultivation at the small and medium level will support the backbone of the rural economy in the Nilgiris district. After independence, outsiders are now enjoying the economic advantages of the tea industry enjoyed by the British before independence. The growth of the tea industry does not give indigenous people their due share. In addition to using unproductive land in an environmentally friendly manner, this quiet economic movement by small tea growers in rural areas across Nilgiris has helped tackle the issue of unemployment. Therefore support for this socio-economic revolution should come from every quarter. There should be modernised tea industry with a shift in plantation methodology, enhancing the online tea auction. The government should entrust technological know-how to both growers and staff.

The constant tussle between the union of workers and existing firms will cause them to reconsider their willingness to stay in the tea estates can be solved by forming Cooperatives which can retain the benefits of the members. Additional credit facility helps the members to adopt new technology and improve the business. Future, research is recommended to extend the reach of this analysis by conducting investigations focused on the impact of small tea growers' restrictions, the factors affecting tea growers' participation in tea growing, and the environmental impact of small tea growers' use of chemical fertilisers and pesticides in India.

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CHARACTERISTICS, NUTRITIVE VALUE AND ANTIOXIDANT CONTENT OF THE LIBYAN ENDEMIC (*Arbutus pavarii* Pamp.) STRAWBERRY TREE FRUITS

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ABSTRACT

Arbutus pavarii Pamp. (Ericaceae) is one of the endemic species in Libya. Samples of the non-ripened and ripened fruits of *Arbutus pavarii* Pamp. were collected from its natural habitat (El-Gabel El-Akhdar, Libya). Fruit characters like fruit size, weight, fruit mass and seeds per fruit were estimated. The vitamin content of A, C and E was estimated using different methods. The total phenolic and flavonoids content of the fruits was determined spectrophotometrically. The antioxidant activity was assessed using a modified quantitative (DPPH) assay at two maturation stages of fruits (green and red). The results were discussed according to the nutritional value of the fruits.

KEY WORDS: *Arbutus pavarii*; antioxidant activity; DPPH; phenolics and flavonoids.

INTRODUCTION

Arbutus pavarii Pamp. (Ericaceae) is one of the endemic species in Libya and it distributes naturally as wild plant in El-Gabel El-Akhdar area, which characterized with Mediterranean climatic conditions (Elshatshat 2009; Elshatshat *et al* 2009; and Elabidi and Elshatshat 2017). It is evergreen shrub or small tree, 1.5 to 3 m tall with reddish brown peeling bark. The flowering season appear from late October to February and the flowers are a good source of nectar for bees. Because of its nutritional and medicinal value, *A. pavarii* Pamp. honey is widely used for folk medicinal purposes (El abidi and Elshatshat 2017), in addition, other honey types which collected from other plant species (Elshatshat and Elsilini 2017).

The fruit takes around 8 months to ripen, and they are spherical and warty, and turn from yellow to orange to scarlet as the autumn progresses (figure 1). The strawberry fruits are edible directly as fruits or

can be made into jam but the taste is somewhat insipid (Elshatshat 2009).

Increasing phenolic compounds in some native plants is one of the strategies of these species to avoid drought stress in arid and semi-arid zones like Libya. According to many studies, the phenolic compounds of the leaves and fruits of *Arbutus* genus, especially *Arbutus unedo* L. were reported, identified and investigated (Ayaz, *et al.* 2000; Fortalezas, *et al.* 2010; Guimarães, *et al.* 2013; Hamad, *et al.* 2011; and Pawlowska, *et al.* 2006). In addition, the antioxidant properties and activities (Isbilir, *et al.* 2012; Mendes, *et al.* 2011).

Because of its endemism and lack of information about the fruits of *Arbutus pavarii* Pamp., this work was conducted to shade some light on the fruit characters and the characterization of the antioxidant composition at different fruit ripening stages.



Figure 1; Fruits of *A. pavarii* Pamp. in different stages.

MATERIALS AND METHODS

Plant material: Fruit samples of *Arbutus pavarii* Pamp. were collected from its natural habitat (El-Gabel El-Akhdar, Libya) in June and November for the non-ripened and ripened fruits, respectively.

Fruit parameters estimation: For ripened fruit parameters, sampling was conducted according to Molina et al. (2011) with some modifications, when fruits were already ripe and the plants reached their peak fruit densities. The following parameters were estimated; fruit size and weight, number of fruits per main branch, number of fruits per tree, fruits weight per branch and per tree(Kg). Mean fruit mass was determined by weighing 100 randomly ripe fruits. Fruit mass was expressed in fresh weight units.

CHEMICAL ANALYSIS

Antioxidant activity: The antioxidant activity was assessed using a modified quantitative 2, 2-diphenyl-1-picrylhydrazyl (DPPH) assay (Amić, et al. 2003, Phang, et al. 2011). The DPPH was prepared at a concentration of 0.004 % in methanol (HPLC grade). The alcohol extracts of the fruit of *Arbutus pavarii* Pamp. was dissolved in 50% methanol at a concentration of 0.1, 0.2, 0.4, 0.6 and 0.8 mg/mL for both plants.

Sample of the tested solution, 200 µl, was added to 6 mL DPPH solution. Blank was carried out using 200 µl methanol and 6 mL DPPH solution. Solutions were incubated in dark for 30 minutes at room temperature. The absorbance of each sample was measured against methanol at 517 nm. Gallic acid was used as a standard control at a concentration of 0.005, 0.01, 0.02, 0.04, 0.06 mg/ml. All experiments were carried out in triplicate. The scavenging activity of the samples was calculated as a percentage of free radical inhibition (I %) according to the following formula and each measurement was performed in triplicate:

$$I\% = [(A_{\text{blank}} - A_{\text{sample}}) / A_{\text{blank}}] \times 100$$

Where; A_{blank} is the absorbance of the control reaction, A_{sample} is the absorbance of the extract

Vitamin A: The content of β -carotene (pro-vitamin A) was estimated according to (Nagata and Yamashita 1992). The dried powdered plant sample (1 g) was vigorously shaken with a mixture of acetone-hexane (4:6, 10 mL), and filtered. To determine the β -carotene content, the absorbance of the filtrate was measured at four different wavelengths 453, 505, 645 and 663 nm and its amount deduced from the following:

$$\beta\text{-carotene (mg/100 mL)} = 0.216 A_{663} - 1.22 A_{645} - 0.304 A_{505} + 0.452 A_{453}$$

Finally, the corresponding vitamin A content was calculated as following:

$$\text{Vitamin A (IU/100 g)} = (\beta\text{-carotene concentration}) / 0.6$$

Vitamin C: Extraction of vitamin C from the powdered sample (1 g) was carried out with 0.05 M solution of oxalic acid for 24 hours and away from light. The extract was then filtered, and an aliquot amount of the filtrate (2.5 mL) transferred to an amber-coloured volumetric flask and treated with oxalic acid (0.05 M solution, 2.5 mL), metaphosphoric acid / acetic acid solution (0.5 mL), sulphuric acid (5% solution, 1 mL) and ammonium molybdate (5% solution, 2 mL). The absorption of the blue color produced was measured at 760 nm, and the vitamin C content in the investigated sample calculated from a pre-established standard curve (Hussain, et al. 2010).

Vitamin E: The spectrophotometric estimation of vitamin E was performed by adopting the method of (Nasar, et al. 2009), based on Emmorie-Engel reaction. Tocopherols reduce ferric ions to ferrous ions, which upon the addition of α , α' -dipyridyl



produces a red coloured complex. Tocopherols and carotenes were extracted from the powdered herbal material with petroleum ether and the absorbance of the extract measured at 450 nm. A correction was made for carotenoids by addition of FeCl₃ and the absorbance of the solution recorded after 90 seconds, at 520 nm. The concentration of vitamin E (mg/100g dry wt) was calculated as follows:

$$\text{Vitamin E (mg / 100 g)} = \frac{\text{AT}-\text{AC}}{\text{AS}}$$

Where, AT, AC and AS represent the absorbance of test, carotene and standard samples, respectively. Taking in consideration that the IU of Vitamin E is the biological equivalent of either 2/3mg dl- α -tocopherol or 1mg of dl- α -tocopherol acetate; therefore, the concentration of Vitamin E in IU/100 g estimated as dl- α -tocopherol can be deduced from the following equation:

$$\text{Vitamin E (mg/100g)} = \frac{\text{Vitamin E (IU/100g)}}{0.67}$$

Total Phenols and Flavonoids: The total phenolics and flavonoids content of the fruits was determined spectrophotometrically at 765 nm following the Folin-Ciocalteu method. A standard calibration curve was plotted using gallic acid

(Merck, Germany) in the concentration range 1–500 mg/L.

Changes in antioxidant activities and total phenolic content: The antioxidant activity at two maturation stages (green and red) have been examined. The hydrogen donating and/or radical-scavenging capacity of the samples was evaluated by their ability to scavenge the free radical DPPH. For each extract, five dilutions in methanol were prepared (1.93–9.67 mg/L). 2 mL of each dilution were added to 0.15 mL of a 10–3 M DPPH methanolic solution and maintained in the dark at room temperature for 1 h. The absorbance was measured at 517 nm versus a blank prepared without extract.

RESULTS AND DISCUSSION

The results of fruit characters and parameters are presented in table (1). The mean value of fruit size was (2.5 ± 0.45) cm and the weight was (6.7 ± 0.66)g while the mean value of fruit mass was (4.5 ± 0.23)g. On the other hand, the quantitative characters of the fruit production were differed in their values as they shown in table(1).

Table (1): The fruit parameters of ripe fruit of *A. pavarii* Pamp. values are means with ± SD.

Fruit parameter	Mean value	± SD
Fruit size(cm)	2.5	± 0.45
Fruit weight(g)	6.7	±0.66
Fruit mass (g)	4.5	± 0.23
No. of fruits per branch	91	± 11
No. of fruits per tree	1872	± 257
Fruits per branch (kg)	0.610	± 0.05
Fruits per tree (kg)	8.34	± 1.53
Number of seeds per fruit	11.6	± 1.21

From the results, it is clear that the fruit characters and parameters in this study are appeared at the same levels(with some non-significant differences) and were agreed to large extent with those which reported by Molina *etal*, (2011) and Markovski (2017) for the strawberry trees *A. unedo* and *A. andrachne*, respectively.

Even though, *A. pavarii* is endemic to Libya, but it has the same fruit characters of other species which belong to the same family and the same eco-region (

Mediterranean). This might reflect and exhibited geographical and climatic environmental factors, especially, annual rainfall variation in the Mediterranean region and their effect on the fruit characters.

The results of both ripe and unripe fruits were differed in their vitamins contents. But, revealed high amounts of most of them in both fruit stages as they listed in Table 2.

**Table (2): Vitamin contents of the fruit of *Arbutus pavarii* Pamp. RDA = Recommended dietary allowances (Tobias 1995, Sweetman 2002)**

Vitamin	the ripe fruit	the unripe fruit	RDA
Vitamin A	1057.83 IU/ 100g	900 IU/ 100g	700-1300 IU/d
Vitamin C	120 mg/100g	250 mg/100g	65-115 mg/d
Vitamin E	33 mg/ 100g	300 mg/100g	4-19 mg/d

Vitamins are essential dietary components; which are necessary for optimal body growth and health. From the previous data, it could be concluded that, the aerial parts of the fruit of *Arbutus pavarii* Pamp. contains appreciably high amounts of the two fat-soluble antioxidant vitamins, A and E in the ripening stage exceeding the amount in the unripening stage. The fruit also showed the presence of tocopherols (vit E) with lower concentration (235 mg/kg) than of the current study (Barros, et al. 2010).

Previous studies in *A. unedo* fruits showed very variable amounts of vitamin C, and only a few

studies reported values of ascorbic acid in fresh fruits (Alarcao-E-Silva, et al. 2001). The analysis showed vitamin C levels considerably high ranging from 120- 250 in the different stages. Studies performed by (Alarcao-E-Silva, et al. 2001) demonstrated the importance of harvest date and location on the amounts of total vitamin C.

The results revealed that the total phenolic content was highest at the red stage (457.59 mg/g) followed by the green stage (163.6mg/g). On other hand, the contents of the flavonoid are similar with slight difference at the two stages (Table 3).

Table (3): Total phenolics and flavonoids in the fruit of *Arbutus pavarii* Pamp. The results are expressed as milligrams of gallic acid and rutin equivalents per 100 g of fruit.

Stage of <i>A.pavarii</i> Pampan fruit	Total flavonoids mg/g	Total phenolic mg/g
Unripe fruit (green stage)	35.1	163.6
Ripe fruit (red stage)	34.2	457.59

Changes in antioxidant activities and total phenolic content of *Arbutus pavarii* Pamp. fruit at different maturation stages (green and red) have been examined. Studies related to this point are minimal, if not non-existent. The IC50 value is the effective concentration which is required to decrease the initial DPPH concentration by 50% and the lower EC50 value reflects the better protective action. Ripe fruit extract had the lowest EC50 value. According to statistical evaluation, in fruit ripening period, the average EC50 value of DPPH scavenging activities is

the following order: ripe fruit higher than the unripe. Our results for red fruits are agreement with (Oliveira, et al. 2011), who explained the lowest EC50 value of DPPH in ripened fruits.

The results showed a good correlation between the antioxidant activity and vitamin A, E and C and phenolic contents (Table 4).



The antioxidant activity of ripe and unripe fruits of *Arbutus pavarii* Pamp. against gallic acid in terms of $IC_{50} \pm SD$

Sample	DPPH % Inhibition*
Alcoholic extract of ripe fruit of <i>A. pavarii</i> Pamp.	0.045 ± 0.01
Alcoholic extract of unripe fruit of <i>A. pavarii</i> Pamp.	0.066 ± 0.02
Gallic acid	0.03± 0.002

Increasing phenolic compounds and antioxidants in *A. pavarii* Pamp. is one of strategies which this plant take to avoid drought stress in El-Gabal Al-akhdar area that characterized with semi-arid climatic conditions. This lead to increase the nutritive value of the fruits of this endemic plant. The chemical composition of fruits, in which phenolic acids, flavonoids and vitamins are present, may be responsible for the reported biological properties, especially as antioxidant. All of these have suggested as a main reason to increase the utilization of fruits and/or derivatives in human nutrition in the future as source of bioactive phytochemicals. In addition, as one of natural resources of industry of these compounds.

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DIGITAL THERMOMETER BY USING AT89C51 MICROCONTROLLER

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ABSTRACT

Automation is nowadays a new trend of Electronics. This automation has been implemented by the help of microcontrollers. If a microcontroller is programmed efficiently then it is capable to work efficiently as human. This era of automation has reduced so much human efforts. In this century some changes has taken place in the field of technology. The most important of those is the use of digital circuits in everywhere. The world of digitization has made things easier than before or we can say it has reduced human error in most of the areas. In our research we have made a digital thermometer by using AT89C51 microcontroller. The other components we have used are LM35 temperature sensor, Analog to Digital converter IC (ADC0804), MAX-232 IC chip for serial communication with the microcontroller and LCD display to display the temperature. We hope that this research paper will be helpful to scientific improvement in the field of making Digital thermometers to a great extent.

KEYWORDS— Digital Thermo, Microcontroller, Timer, Temperature Sensor.

I. INTRODUCTION

The invention of microprocessors and hence microcontrollers were a big invention in the fields of technology. Throughout the years the microcontroller family has evolved to provide us with better opportunities of application. Now-a-days, dual core, 64-bit controllers are widely used all over the world. But, the need for basic 8bit microcontrollers have always been at a high because of their small size, simplicity, ease of use and most importantly they are quite cheap as well. Simple yet providing the opportunity to spread the wings of innovativeness, the basic microcontrollers have found applications in various fields and thus created the concept of Embedded Systems. In our paper we have used the 89C51 microcontroller to make a digital thermometer [1], providing us with temperature as accurate as 0.5 °C variation. Combining the hardware and software concepts together and interfacing the microcontroller with an analog to digital converter (ADC) chip and A LCD module to display the temperature we have implemented our project. By using a temperature sensor ranging from 0-100 °C scale, after this program the microcontroller has been built. Eventually to test its precision, performance and reliability, a virtual microcontroller was simulated. We have been able to make it

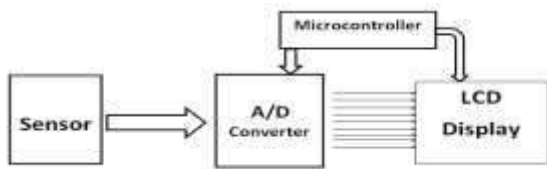
work as a Digital Thermometer. The rest of the paper is organized as follows: The block diagram is presented in Section III, the circuit diagram in Section IV, followed by description of electronic components in Section V, description of software design in Section VI, and experimental results in Section VII. Finally, the conclusion are discussed.

II. AIMS AND OBJECTIVES

Digital room temperature is very crucial, since a certain room or atmosphere needs to be digitally controlled which means that the analog temperature reader uses a tension overwriting which may require more measurements to obtain the actual ambient temperature. With the LM35 temperature sensor this device helps the consumer to achieve a more accurate temperature representation of the room.

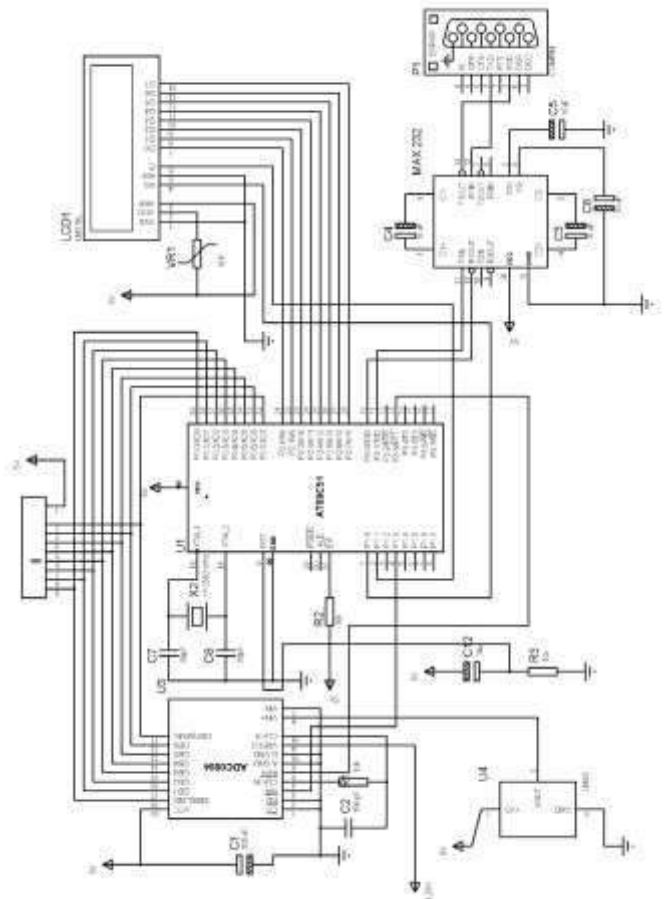
III. BLOCK DIAGRAM

The temperature sensor LM35 is used in the digital thermometer that takes input as analog signal [2]. The signal is converted into digital by ADC, and by the help of microcontroller consisting of software which has been simulated to check its precision. Fig 1. illustrates the block diagram of the whole system.

**Fig 1. Block Diagram of Digital Thermometer**

IV. CIRCUIT DIAGRAM

The LM35 series are circuit-temperature [3], [7] sensors with a precise circuit integrated output voltage that coincides linearly with centigrade. Since the consumer is needless to eliminate a too large constant voltage from the output for comfortable centigrade scaling, has a benefit over the linear temperature sensors tuned to ° Kelvin. Moreover, the LM35 sensor does not require any external calibration or trimming to supply typical accuracies of $\pm 0.1^\circ\text{C}$ over a full- 55°C to $+150^\circ\text{C}$ temperature range. Low cost is assured by trimming and calibration at the wafer level. The low output impedance, linear output, and precise inherent calibration of the LM35 make interfacing to read out or control circuitry especially easy. The device is employed with single power supplies, or with plus and minus supplies. As the LM35 draws only $60\mu\text{A}$ [4] from the provision, it has very low self-heating of less than 0.1°C in still air. LM35D is obtainable with an 8-lead, small-scale surface assembly and a TO-220 plastic kit (Texas, 2016). We have used the LM35 IC as the temperature sensor in our project. With the variations of temperature, the IC generates varying voltages which are fed to the analog input of the ADC which then sends the digital data to the 8051 microcontroller. The microcontroller recognizes the different digital inputs and thus displays the corresponding temperatures on the LCD. The circuit diagram consists of temperature a sensor, ADC, microcontrollers and LCDs. LM35 is used for measuring temperature, as a temperature sensor. In the shape of an analogue signal, the temperature sensor output is. ADC0804 is used to digitalize this analogue signal. The Microcontroller is supplied with the ADC output. The controller output is seen on the LCD. Hence, the positive temperature from this circuit configuration is determined from 0°C to 100°C . An ADC of AT89C51 microcontroller converts the sensor output voltage to digital voltage of 10 bit [5], [6]. Fig 2. illustrates the circuit diagram of the digital thermometer.

**Fig 2. Circuit simulation of digital thermometer.**

V. ELECTRONIC COMPONENTS

A. AT89C51 Microcontroller and MAX-232

The AT89C51 is a low power, high performance CMOS 8-bit microcontroller with a 4 Kilobytes of Flash Programmable Memory and Erasable Read Only Memory (PEROM). It also consists of 128 bytes of RAM, 32 I/O lines, two 16-bit timers/counters, a five vector two-level interrupt architecture, a full duplex serial port, on-chip oscillator, and clock circuitry. This microcontroller is used for this thermometer implementation. It consists of a 40 pin package which has 5 ports namely port A, port B, port C, port D, and port E. This microcontroller is commercially available everywhere which makes it more economic and simple. The MAX232 is used to transform signals of RS232, which would be suitable to 8051 'S TxD and RxD pins, into TTL voltage values. One bonus of MAX232 is the +5V energy supply, which is similar to the 8051 source voltage. So we can power both 8051 and MAX232 with a single +5V power supply without the need for dual power supplies typical to many older systems. The MAX232 has two lines for data transmission and reception. The TxD line drivers are called T1 and T2, while RxD is called R1 and R2. T1 and R1 for TxD and RxD 8051 in certain cases are used together, although the second pair is not used. The T1 line driver has a T1 in and T1out of pin numbers 11 and 14 respectively. The T1 in pin is the component of the TTL and associated with the TxD. The T1out is an RS232 side attached



to the RxD RS232 pin of the microcontroller. The bin plug of the R1 line driver also has a pin numbers classification for R1 in and R1out. The R1 in (pin 13) is the side of the RS232 attached to the TXD pin. The TTL side attached to the RxD pin of the RS232 DB and R1out (pin 12) microcontroller.

B. Display device

In our temperature sensor model, we have used the HD44780 controller based LCD module to display the temperature. Before using the LCD, we first have to initialize the LCD in the following manner mentioned in assembly language programming:

1. LCD_data equ P2 ;LCD Data port
2. LCD_D7 equ P2.7 ;LCD D7/Busy Flag
3. LCD_rsequ P1.0 ;LCD Register Select
4. LCD_rwequ P1.1 ;LCD Read/Write
5. LCD_enequ P1.2 ;LCD Enable
- 6.
7. LCD_init:
8. mov LCD_data,#38H ;Function set: 2 Line, 8-bit, 5x7 dots
9. clrLCD_rs;Selected command register
10. clrLCD_rw ;We are writing in instruction register
11. setbLCD_en ;Enable H->L
12. clrLCD_en
13. acallLCD_busy;Wait for LCD to process the command
14. mov LCD_data,#0FH ;Display on, cursor blinking command
15. clrLCD_rs;Selected instruction register
16. clrLCD_rw ;We are writing in instruction register
17. setbLCD_en ;Enable H->L
18. clrLCD_en
19. acallLCD_busy;Wait for LCD to process the command
20. mov LCD_data,#01H ;Clear LCD
- 21.
22. clrLCD_rs;Selected command register
23. clrLCD_rw;We are writing in instruction register
24. setbLCD_en ;Enable H->L
25. clrLCD_en
- 26.
27. acallLCD_busy;Wait for LCD to process the command
28. mov LCD_data,#06H ;Entry mode, auto increment with no shift
29. clrLCD_rs ;Selected command register
30. clrLCD_rw;We are writing in instruction register
- 31.
32. setbLCD_en;Enable H->L
33. clrLCD_en
34. acallLCD_busy;Wait for LCD to process the command
35. ret;Return from routine.

After initializing the LCD we can then use it for displaying the temperature by sending proper instructions to the LCD via microcontroller.

VI. SOFTWARE DESIGN

The software function of this digital thermometer design is achieved by Assembly Language. Basically the program highlights the data acquisition from the temperature sensor and display real-time data of temperature. The C code for our project (correct to 0.5 degree Celsius).

```
sbit LCD_RS at P1_0_bit; //initializing P1.0 as LCD_RS
sbit LCD_EN at P1_1_bit; //initializing P1.1 as LCD_EN
```

```
sbit ADC_SC at P1_3_bit; //initializing P1.3 as ADC_SC
unsigned int ADC_DATA=0,x,fnew; //initializing integer values
unsigned long double f; //initializing long double values
unsigned short ADC_READ=0,interrupt_status=0;
unsigned char ch; //initializing character value
void LCD_INI(); //declaring the functions void
LCD_DATA(unsigned short);
void LCD_COMM(unsigned short);
void conversion(unsigned int);
void convf(unsigned int);
void display();
void main() //main function
{
    IE=0x94; //setting the IE register with 94H value
    P0=0xff; //setting the port 0 as the output port
    P1=0x00; //setting the port 1 as the input port
    P2=0x00; //assigning values to port 1 and port 2
    LCD_INI(); //calling the function
    while(1) {
        delay_ms(5000); //delaying the process
        ADC_SC=0; /*sending a low to high pulse to the
        ADC_SC=1; start conversion bit of ADC*/
        if(interrupt_status==1)//checking the value of the flag
        {
            display(); //calling the function display()
        }
    }
}
//*****
//*****//
void LCD_INI() //initializing the LCD
{
    LCD_COMM(0x38);
    LCD_COMM(0x38);
    LCD_COMM(0x38);
    LCD_COMM(0x0c);
    LCD_COMM(0x01);
    LCD_COMM(0x06);
    LCD_COMM(0x80);
    delay_ms(100);
    return;
}
//*****
//*****//
void LCD_DATA(unsigned short x) //function LCD_DATA
{
    P2=x;
    LCD_RS=1;
    LCD_EN=1; //sending a high to low pulse to LCD enable pin
    LCD_EN=0;
    delay_ms(5); // delaying the program by 5 ms
    return;
}
//*****
//*****//
void LCD_COMM(unsigned short y) //function LCD_COMM
{
    P2=y; //port 2 is sent the value y
    LCD_RS=0;
    LCD_EN=1; // high to low pulse given to LCD enable
    LCD_EN=0;
    delay_ms(5);
    return;
}
```



```

}
//*****
//*****//
void interrupt() org IVT_ADDR_EX1 //function for interrupt
{ interrupt_status=1; //setting the flag
ADC_READ= P0 ; //reading the content of P0
ADC_DATA=ADC_READ*5; //multiplying the value with step size
return;
}
//*****
//*****//
void display() //the function to display
{
interrupt_status=0; //resetting the flag
x=ADC_DATA; conversion(ADC_DATA); //calling the function
LCD_DATA('C'); //display the character C on LCD
LCD_COMM(0x80); //displaying on the first line of LCD
return;
} void conversion(unsigned int a) //function to convert into
{
ASCII ch=(a/100)+48; //the first digit is converted to ASCII
LCD_DATA(ch); //calling the function LCD_DATA
ch=((a/10)%10)+48; //the second digit is converted LCD_DATA(ch);
LCD_DATA('.'); //displaying the decimal point ch=(a%10)+48;
//displaying the digit after the decimal LCD_DATA(ch);
LCD_DATA(223); //displaying the character ° (degree)
return;
}

```

VII. EXPERIMENTAL RESULTS

The circuit was tested after the final assembly and Fig 3 and Fig 4 revealed final figures. The final result reveals the temperature. The output of the sensor is linear. Timing and temperature system calculation dimensions are carried out successfully.



Fig 3. The LCD displaying the room temperature of the lab. The DC power supply is supplying the 5V 0.03A current to the circuit for it to operate.

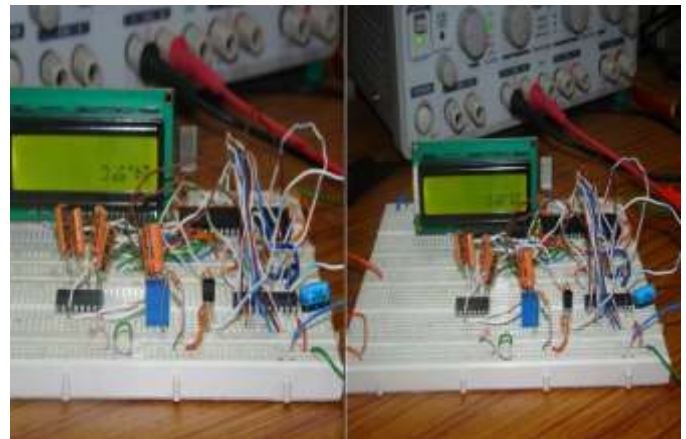


Fig 4. The two clips shows the temperatures at two instants. The left one shows 24.5°C and the right one shows 25.0°C

CONCLUSION

In this paper we got a clear idea about the functions of the 8051 microcontroller. We used C code to program the microcontroller. Secondly, we learnt about RS232 for serial communication with the microcontroller and also about the MAX232 IC chip to convert the voltage levels of RS232 to the corresponding TTL voltage level. We used the analog to digital converter ADC0804 to convert the analog voltage signals to its corresponding digital output and how to use this output in 8051 for various purposes. We learnt to interface the LCD with the microcontroller and hence displaying data on it. In our paper we used LM35 temperature sensor which gives varying voltage levels upon variations of temperature. These varying voltage levels are fed into the ADC and the digital output is fed into the microcontroller which is also programmed to display the corresponding temperature on the LCD. Thus we made a digital thermometer which is correct upto 0.5°C ranging from 0°C to 100°C which is capable enough to be used in practical day to day activities. Last, but not the least, the knowledge of the microcontroller has inspired us to portray our innovations and expand our thought process in new fields, which will be beneficial to human beings.

ACKNOWLEDGEMENTS

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IMPLEMENTATION OF RASTRIYA UCCHATAR SIKHYA AVIYAN IN MIZORAM

Vanlalchhanhimi
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ABSTRACT

Rastriya Ucchatar Sikhya Aviyana (RUSA) a central sponsored programme to attain higher levels of access, equity and excellence in the state higher education system with greater efficiency, transparency, accountability and responsiveness. Mizoram is a north eastern state having 32-degree colleges only not progressed much in higher education with respect to quality and accesses. The present study examined the awareness on RUSA among college teachers in Mizoram and study the best practices implemented in the colleges of Mizoram. evaluated the RUSA programme in Mizoram. A structured interview schedule was developed and administered to collect the data from the 52 respondents. The findings of the study that the teachers of Mizoram are not aware about the centrally sponsored scheme RUSA. Government of Mizoram must take care of that and arrange orientation training programme for the degree college teachers on RUSA. Government of Mizoram must take care to proper utilize the funds under RUSA and colleges should give more emphasis to increase GER.

KEYWORDS- Higher education, Gross enrolment ratio, RUSA, Quality, Access, Equity

INTRODUCTION

The Higher Education system of a country is the gateway of its recognition in the global platform. It is the most critical component of bringing change in a society and a nation. Through Higher Education, a nation can address the issues relating to equity, accessibility, quality, values and development. Higher education enables individuals to expand their knowledge and skills, express their thoughts clearly in speech and in writing, grasp abstract concepts and theories, and increase their understanding of the world and their community. Higher education improves an individual's quality of life. India's higher education system is the third largest in the world, next to the United States and China. The main governing body at the tertiary level of Indian Education is the University Grants Commission (UGC), which enforces its standards, advises the government, and helps coordinate between the centre and the state. The higher education system as a whole is faced with many challenges such as financing and management, access, equity, relevance and re-orientation of policies and programs for laying emphasis on values, ethics and quality of higher

education together with the assessment of institutions and their accreditation. These issues are of vital importance for the country, since higher education is the most powerful tool to build a knowledge-based society for the future. The enormity of the challenge of providing equal opportunities for quality higher education to an ever-growing number of students is also a historic opportunity for correcting sectoral and social imbalances, reinvigorating institutions, crossing international benchmarks of excellence and extending the frontiers of knowledge.

As per All India Survey on Higher Education, Government of India (2019), there are 993 Universities, 39931 Colleges and 10725 Stand Alone Institutions in India. Out of 993 universities 385 Universities are privately managed. 394 Universities are located in rural area. 16 Universities are exclusively for women, 3 in Rajasthan, 2 in Tamil Nadu & 1 each in Andhra Pradesh, Assam, Bihar, Delhi, Haryana, Himachal Pradesh, Karnataka, Maharashtra, Odisha, Uttarakhand and West Bengal. In addition to 1 Central Open University, 14 State Open Universities and 1 State Private Open



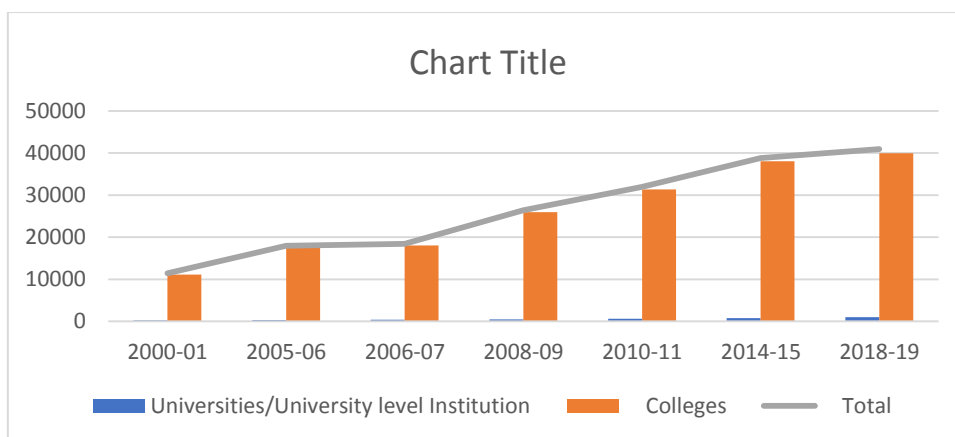
University, there are 110 Dual mode Universities, which offer education through distance mode also and the maximum 13 of them are located in Tamil Nadu. There are 548 General, 142 Technical, 63 Agriculture & Allied, 58 Medical, 23 Law, 13 Sanskrit and 9 Language Universities and rest 106 Universities are of other categories. The top 8 States in terms of highest number of colleges in

India are Uttar Pradesh, Maharashtra, Karnataka, Rajasthan, Haryana, Tamil Nadu, Gujarat and Madhya Pradesh. There are 34.8% Colleges, which run only single programme, out of which 83.1% are privately managed. Among these, 38.1% colleges run B.Ed. Courses only.

Year	Universities/University level Institution	Colleges	Total
2000-01	266	11146	11412
2005-06	346	17625	17973
2006-07	367	18064	18431
2008-09	467	25951	26418
2010-11	611	31324	31935
2014-15	757	38056	38813
2018-19	993	39931	40924

Table-1 Growth of Higher education Institutions in India (2000-2019)

Source -University News



As per All India Survey on Higher Education, Government of India (2019),

“Gross Enrolment Ratio (GER) in higher education in India is 26.3%, which is calculated for 18-23 years of age group. GER for male population is 26.3% and for females, it is 26.4%. For Scheduled Castes, it is 23% and for Scheduled Tribes, it is 17.2% as compared to the national GER of 26.3%. Distance enrolment constitutes about 10.62% of the total enrolment in higher education, of which 44.15% are female students. About 79.8% of the students are enrolled in Undergraduate level programme. 1,69,170 students are enrolled in Ph.D. that is less than 0.5% of the total student enrolment. Pupil Teacher Ratio (PTR) in Universities and Colleges is 29 if regular mode enrolment is considered whereas PTR for Universities and its Constituent Units is 18 for regular mode. At Post Graduate level M.A. pass number of

students is maximum followed by M.Sc. and M.B.A. The highest number of students (23.3 Lakh) have graduated in Arts courses. At Ph.D. level, maximum numbers of students out-turn is in Science stream followed by Engineering and Technology. On the other hand, at PG level maximum students out-turn is observed in Social Science and Management stream comes at number two. The share of Ph.D. student is highest in State Public University (34.3%) followed by Institute of National Importance (21.6%), Deemed University-Private (21.6%) and State Private University (13.4%). Around 26.99 lakh students and out of this majority of students are enrolled in Teacher Training, Nursing and Technical streams. Uttar Pradesh, with its highest student enrolment in India, has 49.30% male and 50% female students. Maharashtra has the second highest student enrolment with approx. 54.95% male and approx. 45.05% females. Thereafter, Tamil



Nadu has 50.87% male and 49.13% female, West Bengal with 50.37% male and 49.63% female students. In Karnataka, percentage of females enrolled is 50.04% whereas in Rajasthan more male students are enrolled as compared to female students. Out of total no. of 14,16,299 teachers for 2018-19 about 57.85% are male teachers and 42.15% are female teachers. The lowest gender proportion is recorded in Bihar where female to male teachers' ratio is 1:4 which in percentage terms is 78.97% for male and only 21.03% for female teachers. Jharkhand comes close second with 69.8% male teachers and 30.2% female teachers. Uttar Pradesh has 32.3% female teachers of the total teachers in the State. A few States like Kerala, Punjab, Haryana, Chandigarh, Meghalaya, Nagaland, Delhi and Goa on the other hand have more female teachers than male teachers".

The Central Advisory Board on Education (CABE), the highest advisory body of the Government of India in education on policy matters, gave in-principle approval to Rastriya Uchchar Sikhya Aviyan (RUSA). The vision of the RUSA is to attain higher levels of access, equity and excellence in the state higher education system with greater efficiency, transparency, accountability and responsiveness.

RUSA is an umbrella scheme operated in mission mode that would subsume other existing similar schemes in the state higher education sector. The key features of RUSA is Norm-based and performance-based funding, commitment by States and institutions to certain academic, administrative and governance reforms will be a precondition for receiving funding. Funding to the states would be made on the basis of critical appraisal of State Higher Education Plans (SHEPs). State Higher Education Councils (SHEC) will have to undertake planning and evaluation, in addition to other monitoring and capacity building functions. Centre-State funding would be in the ratio of 90:10 for North-Eastern States, Sikkim, J&K, Himachal Pradesh and Uttarakhand and 65:35 for Other States and Union Territories (UTs). The objectives of RUSA would be achieved through need based and customized equity interventions, quality improvement programs, and obtain mandatory accreditation. Faculty issues would be addressed through creation of new posts, filling of existing posts by full time faculty and faculty improvement programmes. Largosen, et al (2004) studied the adaption of quality controlled, academic freedom and superficial and diluted excises of higher education institutional. He founded that quality control and sustains are two major factors of quality management of higher education. Kumar (2004) studied the major

sources of finding higher education. He concludes that for government own institution government acceptor and for private institution donation, fees and income from endowment form are the main sources of income. National Knowledge Commission (2006) studied the higher education system and recommends that, research, collaboration; equality and assessment, rationalization of fees, private investment, public private partnership and developing international student's trust need to be implemented.

Tilak (1995) studied the funding of higher education in India. The study found that higher education, in particular, has been considered a better and more effective instrument for ensuring equity and social justice than many other direct measures (Tilak 1995, Basaril, G. 2016, Chandra,2005.). Agarwal (2006) specifically pointed out that a higher level of education has contributed towards the inculcation of human values and also towards building democratic civil societies even in developed countries the national expenditure has fallen after 2008 global recession. Sing J D (2007) studied issues and challenges in higher education. It concludes that although there have been challenges to higher education in the past, these most recent calls for reform may provoke a fundamental change in higher education. This change may not occur as a direct response to calls for greater transparency and accountability, but rather because of the opportunity to reflect on the purpose of higher education, the role of colleges and universities in the new millennium, and emerging scientific research on how people learn. These disparate literatures have not been tied together in a way that would examine the impact of fundamental change from the policy level to the institutional level and to the everyday lives of college and university administrators, faculty and students. Now the time has come to create a second wave of institution building and of excellence in the fields of education, research and capability building. We need higher educated people who are skilled and who can drive our economy forward. When India can provide skilled people to the outside world then we can transfer our country from a developing nation to a developed nation very easily and quickly

The Economic Survey (2011) stated that India, currently had a gross enrolment ratio (GER) of 13.5 percent in higher education (in the age group 18-23 years) as compared to 81.6 per cent for USA, 22.1 percent in China and 29.7 percent in Malaysia. There is a need to focus on such policy measures and programmes that can bring good number of students from socially and economically disadvantaged sections into the fold of higher education. He further observed that good quality higher education still remained elite in nature as it was still not accessible by a large bulk of eligible population. Government should realize the limitations of the private sector and strengthen higher education in areas which are very



vital in improving nation's competitiveness through fundamental research. Besides, austerity measures in higher education have taken a heavy toll on the quality of higher education. He also suggested that these trends in funding should be reversed and public funding for higher education should be substantially increased.

Studies conducted on RUSA (Naorem R. Singh, M 2014 Balu, A & Kumar, P 2015, Giri,D,2018) explains about the Rashtriya Uchchatar Shiksha Abhiyan (RUSA) National Higher Education Mission, a Centrally Sponsored Scheme (CSS) for reforming the State Higher Education System in India. and also, the economic impact of the scheme on the current Higher Education System of India. It concludes by mentioning that most of the Colleges are understaffed with inadequate Teaching Faculty. The Primary and Secondary education is the right of every person and therefore it is the main duty of government to provide education for all. But so far higher education is concerned the main problem is that of funding the system and it is important issue which the higher education is facing. The teachers belong to the intellectual class of the society and they are affected with privatization of higher education. Mizoram is one of the seven sisters of Northeast India, bordered by Myanmar (formerly known as Burma) to its east and south, Bangladesh to its west, and the states of Manipur, Assam, and Tripura to its north. Mizoram means 'Land of the Highlanders' and its local language is Mizo. The Mizo Hills, which dominate the state's topography, rise to more than 2000 m (6560 ft) near the Myanmar border. Aizawl, the state capital, is 1220 m (4000 ft) above sea level. The state covers a total area of 8,139.4 sq miles or 21,087 sq. km.

According to the census performed in 2011, the population of the state is 1,091,014. Mizoram has 8 districts namely Aizawl, Kolasib, Lawngtlai, Lunglei, Mamit, Saiha, Serchhip, Champhai, with 22 towns and 817 villages. Mizoram comprises of a formal system of education which ranges from elementary to university education, training to technical courses. By census 2011, the state has the third highest literacy rate in the country i.e. 92%. There are about 3900 schools 32 colleges (report of college development council) in the state which are either privately owned or are fully or partially managed by the government. Mizoram state is having only one university and a few numbers of colleges. The history of higher education in Mizoram started in 1958 when Aijal Night College, (later renamed as Pachhunga College, and now a Constituent College of Mizoram University bearing the name 'Pachhunga University College') was established with a donation by Mr. Pachhunga, an education minded businessman of Aizawl. Higher education in the state therefore is only a little more than 50 years old and many of the first-generation learners are still alive leading active

life. Six years after the establishment of the first College, another College now known as Lunglei Govt. College was established in 1964 in Lunglei, the second capital of Mizoram. Most of the present Colleges are established only after Mizoram attained the status of Union Territory in 1972. Mizoram University started functioning in the middle of 2001 by taking over all the assets and liabilities of the erstwhile NEHU Campus in Aizawl. There were as many as seven PG departments viz. English, Public Administration, Education, Psychology, Economics, Forestry and Mizo at that time. Mizoram University at present runs as many as 25 PG Departments and 4 B.Tech. Courses. All Colleges under the State Government got their affiliation to Mizoram University. The teachers may or not be aware about RUSA, and their attitude towards it can be different. Teacher's awareness is important for better implementation of plans and programmes in higher education sector. The present study examined the awareness on RUSA among college teachers in Mizoram and study the best practices implemented in the colleges of Mizoram. evaluated the RUSA programme in Mizoram.

METHODOLOGY

Keeping in view the objectives of the study and nature of the problem survey method has been used for the present study. Descriptive survey research aims at gathering and tabulating the data, interprets the meaning and finds out the significance of the results. The population of the study was 1004 teachers of general degree colleges of Mizoram. Simple random sampling procedures were adopted for the study. The researcher selected eight colleges (one college from each district) of Mizoram. Fifty-two teachers of degree colleges, eight principals and Director higher and technical education, Mizoram was taken as sample of the study. The investigator met the principal from whom he collected different information regarding RUSA programme and about the teachers. With the help of principal from each sample college, the investigator randomly selected teachers who are available on the day of data collection. Fifty-two teachers were interviewed in the present study by self-made interview schedule which includes concepts, components and implementation of RUSA. The interview schedule was administered personally by the investigator. One Focus Group Discussion was conducted for the study.

MAJOR FINDINGS

Awareness of college teachers on RUSA refers to the factual knowledge about important aspects of RUSA and its allied problems. It also refers to the capacity on the part of the individual to make proper diagnosis and thereby develop an attitude of mind. With regards to the concept of



RUSA a programme for Higher Education. 76% of teachers accepted it. Similarly, 12% of teachers said that GER of Higher Education is 25%. It indicates that only 12% of teachers knew about the GER of Higher Education. Regarding the funding pattern and structure of RUSA, only 21% of the teachers were aware about it. Fifty-three percentage of the teachers reported that they are not aware about the quality components of RUSA. Similarly, 89% teachers said that they are not aware about the provisions of professional development of teachers under RUSA. From the above analysis it is found that most of the teachers were not aware about RUSA and its Implementations. State government has not sensitized them about RUSA. The teachers were not familiar about the basic components of RUSA i.e. the objectives, structures, funding pattern and the Gross Enrolment Ratio.

Before 2013, Government of Mizoram (GoM) have not been able to allocate enough funds to its higher education sector, as a result, the quality of infrastructure and teaching in the State Higher Education Institutions (HEIs) is far below the acceptable levels. All colleges are inadequate infrastructure for creating good academic ambiance After Implementation of RUSA, 8 colleges out of 32 colleges accredited and got 2.56 CGPA by National Assessment and Accreditation Council (NAAC). It implies poor academic quality, less valid NAAC accredited Institutions with high CGPA score. Hence government of Mizoram should upgrade academic facilities, strengthening of Quality Assurance Cell.

Case-1

Best Practice - Reviving Culture and Traditional Values to Promote National Unity and Integrity

The state of Mizoram and the Mizo are much influenced by the westerners because their religion, their alphabets and the modern lifestyle can be credited to the Christian missionaries. The Mizo youth need to retrieve their traditional cultural values and preserve their folksongs, dances and folklore that could be in danger of being forgotten. The influence of the colonizers and also the experience at the hands of the Indian armed forces during insurgency has also resulted in non -acceptance of the ways and lifestyle of mainland India or the rest of India. Mizo youth began to consider themselves different and apart from the rest of the Indians. There is a need to raise and strengthen the spirit of unity and affirm our identity as Indians.

The College has a Govt. registered cultural club known as the Thingsiri Cultural Club which is the first club to be registered from among the colleges in the state. The club takes the responsibility to teach various dances to all students who desire to learn. The club has represented the state in various cultural events and performed in different states of India. The club has won various competitions in the

state. Cultural day is observed in the college where students are requested to come to college in their traditional attire. Motivational speech on Traditional values is presented by teachers in the classroom. Cultural exchange program was organized to celebrate the Silver Jubilee celebration of the college. Another recent National level event, the North East Natya Sangam was jointly hosted by the college with Sangeet Natak Akademi and Deptt. of Art and Culture, in which cultural and drama troupes from all states of the North East and Delhi participated. Most students have received awareness on our own culture, tradition, and traditional values of the past and those of our brothers and sisters of different states. The understanding and acceptance of the Indian brotherhood became easier through the activities of the cultural clubs and their opportunity to go on tours to mainland India. Hosting cultural programs has instilled values in the students to become mature and responsible citizens of India. RUSA has given financial Support for the above programme and implementation of student cultural exchange programs. Under RUSA college has constructed one girls' hostel and academic block. Computers are also installed in the college for improving the quality of higher education.

Case-2

Best Practice - To Protect and Preserve Natural Environment

As one of the most grievous universal problem faced today is environmental imbalance, the college has adopted the protection and preservation of the natural environment as one of the best practices of the college. Planting of trees and plants is a mission for the Eco club and the Cleanliness and Beautification Cell. They take up the task of taking care of the trees and plants in the campus. Deforestation cannot be avoided due to development of infrastructure in the campus with a number of constructions works going on. The cells and NSS also help keep the locality clean and green by organizing Cleanliness Drive and social works.

Workshop on E-waste Management was conducted. Awareness is given to students regarding cleanliness, social work is conducted in collaboration with NSS in the campus and the locality where the college is located. The civic sense to reach out and help to preserve a clean and green environment is instilled in the students. The college was the first institution to volunteer and help the District Commissioners Office to clean Chite River in the Save Chite Project of the Government. To put a check to ourselves, Green Audit was initiated by the college and was done by the State Pollution Control Board. Regular checking is done to make sure that students and staff have a pollution free certificate for all vehicles that enter the campus. It is a must that each department of the college contributes towards planting of trees. NSS also take care of the tree



plantations in the forest reserve area. The effort of the authorities and cells concerned has borne fruits. The college campus is one of the cleanest and greenest campus of the city. Financial support was provided by government of Mizoram under RUSA component for the implementation of the above programs.

Case-3

Best Practice - Gender Equality Ambiance

The status of women in the country and state has improved but is far from being equal with men. Mizo girls often lack confidence to rise high as the home and social environment does not permit her to equip herself as much as she wants to or is capable of. Therefore, Gender Equality Ambiance is included among the best Practices of the college. A Remedial class for weak learners is also conducted in the college. Girl Students are encouraged to attend it and improve their knowledge. The college aims at equipping women students to fight against all odds to reach the best of what they can be.

The Mizo society has evolved to a modern society with a high literacy percentage. However, the status of a girl child, or a daughter, a wife or a daughter in law has never been equal to their counterparts. The woman in the family is often deprived of the various opportunities of life of life which are open to the men of the family. A girl student has less studying atmosphere in the home where she has to perform all her household chores. Our college has been a blessing since long for economically and academically disadvantaged students from remotest areas of the state. Financial assistance has been often provided. Girls from outside the city stay as maids or take up part time jobs and depend on their distant relatives by staying in their house and help them in the household work. It is difficult for them to spare much time for studies. Therefore, running a girls' hostel with minimum fees was the priority of the college.

Equipping the girls with self-defence Taekwando training, making them aware of laws that are in the favour of their safety (Jurisprudence Course), improving their skills through cooking and baking classes and other such related programs has made them confident and brave. Realizing that running of girl's hostel by the college has been a blessing for many girls in utter need has inspired the college to open another hostel for economically disadvantaged students. Remedial classes have proved effective as pass percentage among the girls has increased. The College has received funds from UGC for a girls hostel and is going to receive more to open a new hostel from Ministry of Tribal Affairs. conducting of value-added Courses was possible through the funds received from RUSA under equity. Professors have often financed and freely donated for the upliftment of the status of the girl students in the college.

CONCLUSION

The Higher education system of Mizoram state is not as per the National level. The number of institutions is very less; student's enrolment is also less in comparison to National level. Only one central university takes care about the affiliation system of colleges and conducts the examination also. Teachers working in the degree colleges of Mizoram were also not aware about the recently launched programme RUSA. The quality of education depends mainly in three aspects i.e. the human resource, infrastructural and instructional facilities of the colleges. Due to lack of awareness, teachers are showing neither positive nor negative attitude towards this programme. Hence state government should orient the teachers about this programme in a phased manner. They should know the pros and cons of the programme. Many aspects like promotion of research, funding pattern, up gradation of colleges to universities and making colleges more autonomous are still unaware by the teachers. So, it is the responsibilities of the UGC-HRDC to conduct special refresher course or summer course on Rastriya Uchcharat Shiksha Abhiyan in which teachers from all streams may participate. Seminars and workshops and conferences on the above topic may be conducted to sensitize the teachers of Mizoram state. The colleges will put more focus to increase GER. The administrative authority may develop a mechanism to monitor the progress of civil work in colleges and proper utilisation of RUSA funds in different components.

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THE EXERCISE OF ICT IN ELT: A LITERATURE REVIEW

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ABSTRACT

The integration of ICT in ELT impacted education in the broader sense that language instructors cannot remain stuck to just board-and-duster anymore. It has been mandatory for the teachers to blend digital content with existing materials. However, it has not been easy to employ authentic-digital materials due to some flaws in the education system (i.e., in developing countries like Bangladesh). In addition to that, the unavailability of technological equipment in most schools, together with teachers' insufficient practical expertise, is a bar to language teaching and learning. Regardless of the drawbacks in the application of ICT in ELT in practice, nothing better than technology is found to set up a positive learning environment for language learners.

KEYWORDS: *ICT, ELT, Authenticity, Autonomy, Communication, Technology.*

INTRODUCTION

Modern methods and approaches to teaching and learning a target language require the confirmation of authentic materials and authentic tasks. Autonomy, another vital aspect in ELT, is believed to be an influencing factor in learning. Authenticity, as well as the independence of the students, can be achieved by applying ICT. If technologically skilled teachers are well equipped with modern technologies, they can use different strategies through ICT-based tools to motivate the learners. But the problems arise when the exercise of ICT in ELT is considered a fancy way of teaching and learning. In most cases, especially in rural zones, language instructors show disinterest in ICT and advocate for traditional methods such as the Grammar-Translation Method (GTM). To promote the integration of ICT with ELT, both the government and the experts should take steps to train the teachers for developing their ICT-related skills and positive attitude towards its application.

LITERATURE REVIEW

Modern technology has introduced techniques that can assist in preparing materials and tasks fast. Rank, Warren, and Millum (2011) believe that teachers can effortlessly explore, investigate and analyse to identify good quality content for the learners. They continued saying that ICT can also encourage and engage the students in participating in communicative tasks through entertainment. Interestingly, besides giving easy and fast access to education, technology is curtailing the cost of schooling. (Bax 2000, 199). However, Bax did not suggest replacing the whole system with a technology-based platform; instead, he emphasised accepting technology as a partial solution to pedagogic issues. (Bax 2000, 200).

While mentioning the achievements of ICT in ELT, Ghasemi and Hashemi (2011) expressed that it widens educators' scopes to monitor and assess students' progress and excels students' language skills required for academic and communicative platforms. In today's world, it is even possible to connect the learners with the target language culture as ICT provides the opportunity to have real interaction with



the native speakers of English. They further stated that a strong correlation exists between the percentage of application of ICT and the improvement rate of learning.

It has been a significant research subject: whether ICT can boost autonomous learning and confirm authentic materials, contextualizing real-life situations. (Otero R. G. 2016). Otero (2016) found that students' language skills' remarkable progress was noticeable after using ICT-based authentic materials. Azmi (2017) also concluded that ICT successfully introduces materials that provide the students with original language and engage them with the tasks that promote autonomy.

Nevertheless, it appears likely that it is challenging for some teachers to exercise ICT in an ELT environment; therefore, the success entirely depends on how skilled the teachers are. (Hashemi 2016, 208). Many researchers came up with the idea that training the teachers in ICT is a requisite for integrating technology with ELT. Samuel and Zaitun (2007) proposed that training should be a continuous process to cope with the changing needs and updates. An instructor's positive attitude and confidence will improve if s/he pursues a 'teaching-practicum' course (for a specific subject/course) that involves integrating ICT in the classroom. (Latchem 2010). But teachers' training projects are less likely to be successful unless the government and educational institutions offer adequate investment and proper support. (Jung 2005).

A study conducted by the Bangladesh Bureau of Educational Information and Statistics (BANBEIS) in 2015 presented that both the Ministry of Education and the Ministry of ICT provided the teachers with training. However, the number of teachers who received training is not significant. Further, it was recommended that government should supply advanced electronic devices at the best prices to the educational institutions

CONCLUSION

To conclude, it can be said that ICT will not work its usual magic to help in teaching and learning English unless the educators receive adequate training in ICT. Once the language instructors are equipped with theoretical knowledge of ICT and technical skills, they will be able to pave smooth ways for their pupils. Because ICT can establish multiple mediums of communications and build a bridge between the learners and the target language culture and society, it would not be a perfect choice to ignore the adoption of technology into ELT.

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TEACHERS' PERCEPTION OF PRINCIPALS' TEAMWORK PRACTICES AS CORRELATE OF TEACHERS' ORGANIZATIONAL CITIZENSHIP BEHAVIOUR IN PUBLIC SECONDARY SCHOOLS IN ANAMBRA STATE, NIGERIA

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ABSTRACT

This study sought to establish the correlation between teachers' perception of principals' teamwork practices of participative leadership and open communication and teachers' organizational citizenship behaviour in secondary schools in Anambra State, Nigeria. Two research questions guided the study and two hypotheses were tested at 0.05 level of significance. The study utilized the correlational research design. The population of the study comprised 6, 382 teachers in the 261 State government owned secondary schools in the state. The sample for the study which is 10.8% of the population was made up of 689 teachers from 131 schools. The sample was composed in stages using proportionate stratified and simple random sampling techniques. A researcher developed instrument titled Teachers Perception of Principals' Participative and Open Communication Teamwork Practices and Teachers' Organizational Citizenship Behaviour Questionnaire (PPOCTOCBTQ), validated by experts was used for data collection. Reliability co-efficients indices of 0.80 and 0.88 was obtained for the two clusters B and C of the instrument while the overall reliability index of 0.88 was obtained for the instrument using Cronbach Alpha to measure the internal consistency. Out of 689 copies of the questionnaire administered on the respondents, 660 copies representing 95.8% return rate were duly completed, retrieved and used for data analysis. Data were analyzed using Pearson Product Moment Correlation. The result of the study indicated that maintenance of a collaborative culture in which teachers engage in focused and purposeful development and collaborative decision making is essential in motivating teachers to perform above and beyond their minimum level which indicates teachers' organizational citizenship behaviour. It was also found out that teamwork brings the school personnel together and improves communication and the overall climate of the school. Based on the findings it is recommended among others that seminars and workshops on effective teamwork should be organized at intervals for principals.

KEY WORDS: *Principal, Teamwork, Teacher, Organizational Citizenship Behaviour, Secondary schools.*



INTRODUCTION

The Nigerian educational system especially at the secondary school level is faced with ever growing demands like higher expectation regarding students' achievement, enhanced diversity in the classroom and demonstration of teamwork skills for the 21st century workforce. These demands make schools' success more and more dependent on teachers' willingness to go above and beyond the call of duty which is referred to as teachers' organizational citizenship behaviour. It further relies upon the heads of the schools who nurture the crop of teachers that embrace a mentality of going above and beyond job description. High quality teaching and high quality of leadership are very necessary for a successful education.

Secondary schools are saddled with the onerous responsibility of preparing the youth for useful living in the society through appropriate arrangement and implementation of the school curriculum. The business of managing such a curriculum has never been a one-man affair. It rather takes the collaborative efforts of the head of the school and the staff to achieve school goals and objectives (Ndu, 2013). This is to say that the teacher and the principal are important to one another and cannot work in isolation. No wonder, Uzonwanne (2014) identified strong and effective teams as a must have for every organization that seeks the peak of performance abilities. In other words, teamwork has been recognized as the means by which schools strive to achieve the stated goals.

Teamwork according to Mangi, Bundi and Mohammed (2015), refers to a group of human beings that have high performance with its members along with the spirit that enables them to achieve the group's goals in the workplace with confidence and co-operation and reduces the workload for everyone, which enables them to exchange ideas. Thus, teamwork practices is an effective leadership behaviour adopted by leaders to bridge the gap between superior subordinate relationship and providing an opportunity for every member of the organization to contribute brains and ingenuity to ensure physical organizational effectiveness. For schools to be successful, everyone must have clear shared goals, a sense of commitment, the ability to work together and other elements of teamwork.

Among the most important teamwork variables are clarity of goals, open communication, participative leadership, training, delegation to duty and empowerment (Ahmed & Al-Hawary, 2017, David, 2018; Duncan, 2017 & Meesad, 2013). This corroborates the findings of Ameneh and Nooshin, 2015, Amet, 2016, Arefi, Shohodi and Zandi, 2012, Oplatka and Stundi, 2011, Shouvik and Mohammed,

2018, that teachers' organizational citizenship behaviour is based on participative leadership, open communication, support for staff development, empowerment, delegation and clarity of goals. When school members share common goals, know their roles and responsibilities have open method of communication, share leadership and are motivated to perform, success is achieved. In tandem with this, Okorji (2014) and Ugurlu and Sincar (2013) submitted that the school needs an open, sound and flexible communication in order to influence the behaviours of teachers. This agrees with Unachukwu (2014) who argued that school leadership has continually shifted from command and control to building teams and getting people to work along with others through inspiration and vision. Therefore, the attainment of the school organizational objectives depends on the ability of the school principals in coordinating and creating a conducive and harmonious atmosphere among the human and material resources in the school, that is to say that the principal like any other administrator of an organization upholds a process of continuous striving for the total enhancement of the organizations' status.

The principal's behaviour should be perceived to be participative. According to Ike, Ezech and Etodike (2017) participative leadership is the act of sharing power among individual members in the organization as a way of empowering them for superior performance. In relation to the school, this amounts to saying that principals' must be ready to give out part of their power to teachers in an exchange, in order to promote good citizenship behaviour among the teachers that is the idea of something for something as indicated in the social exchange theory.

Furthermore, superior-subordinate communication is an important influence on teachers' organizational citizenship behaviour (Herfina & Rubbin, 2015). When principals create an open door policy, guide and encourage teachers by communicating important information, teachers will be obliged to take risks inside and outside the classrooms for effective functioning of the school (Sportsmanship). Obviously, in an educational institution where this type of leadership behaviour prevails high commitment, harmony, mutual trust, job satisfaction and high performance in students' achievement may be experienced. Thus, one of the significant problems facing principals' today is to identify what contributes to teachers' lack of commitment to duty and the type of leadership behaviour principals' should employ to promote teachers' organizational citizenship behaviour.

Organizational citizenship behaviour (OCB), is doing the right thing that benefits the greater good of an organization without receiving recognition or merit.



Active participation of employees beyond the normal demands of their work for organizational development and improvement is seen as organizational citizenship behaviour. Within the educational setting, teachers who voluntarily go out of their way to help their students, colleagues and others as they engage in the work of teaching and learning exemplify organizational citizenship behaviour. Teachers' organizational citizenship behaviour is therefore the efforts made by teachers to do extra things in the work environment.

Organ (1988), categorized organizational citizenship behaviour (OCB) into five dimensions namely: altruism, courtesy, conscientiousness, sportsmanship and civic virtue. Altruism is voluntarily helping others in need without concern for one's own benefit or well-being. Altruistic behaviours have a positive impact on achievement of school goals and can be encouraged as well as discouraged based on the treatment given to subordinates. In schools it can be achieved if combined knowledge, expertise and experience of role players are harnessed in a collaborative manner.

The principal imperatively has a challenging task of encouraging sportsmanship behaviour among teachers. Sportsmanship is the principle of tolerance which must form part of every organizational frame work and is important for enhancing the morale of colleagues. Sportsmanship produces awareness among teachers that they should continue to struggle for the effectiveness of the school even if the higher authorities do not acknowledge or appreciate their efforts (Somech & Oplatka, 2014). Several authors are in agreement that conscientious behaviour are beyond role requirements, directed at the organization and exhibited as a matter of the conscience. Theoretically, conscientiousness may be an important predictor of work place behaviours because it provides directions and associations that are necessary to produce targeted behaviour. Andrew (2016) advanced that, this type of behaviour may manifest among teachers whose principals are supportive to their participation in decision making process. Teachers' have different levels of organizational citizenship behaviour.

The level of organizational citizenship behaviour in schools is mostly affected by intrinsic factors such as teachers' relationship with the principal, participative leadership, informative work environment and mentally challenging work among others. These behaviours are important and cannot be ignored by any school principal as they affect both the academic excellence of the students and service level of the school. For Ikediugwu (2016), students' performance, teachers' achievement and schools' effectiveness all depends on the quality of the principal of the school.

This supports Herren (2014) who suggested that the relationship between principals' leadership behaviour and their level of organizational citizenship behaviour indicates that teachers' performances are influenced by their perceptions of principals' leadership behaviour.

Contrary to the behaviours expected of the school administrators, some studies revealed that some school administrators do not apply these behaviours to a very great extent (Andrew, 2016; Ibara 2011; & Osakwe, 2014). Most principals isolate teachers from important administrative functions thereby asking them to wait for their own turn. In some schools in Anambra state which the researcher visited as a supervisor, some principals admit students by themselves without recourse or inputs by the vice principals, guidance counselor and heads of departments as against what is stipulated in the Education Quality Assurance Handbook (2010), concerning admission of students. In the same vein Awodumilla (2017); Ikegbusi (2016) and Oluremi (2013) submitted that many secondary school principals in Nigeria have no serious or professional training in educational management and administration and are therefore bereft of the changing trends in administration of the 21st century. Probably this could be the reason for the poor teachers' organizational citizenship behaviour observed in Nigerian secondary schools. Teachers on their own seem to neglect their duties and exhibit "I don't care attitude" towards educational improvement. Teachers often complained during world teachers' day (Daily trust, 2010), that they were not part of the decision making process of their school. As a result, many teachers seem to abandon classes, absent themselves from school, form cliques and easily leave the teaching jobs for greener pastures. Ameneh and Nooshin (2015), posit that poor teachers' organizational citizenship behaviour is at all times high and this may be seen in the form of absenteeism, low morale and an attitude of don't ask me to do a single extra thing.

Furthermore, from the observation of the researcher, as a principal in the state there is a tendency that not all teachers optimally engage in activities within their schools thus providing an initial assumption that OCB among secondary school teachers in Anambra State still seems to be low. Thus, principals should facilitate authentic participation by asking for the input of those affected by decisions, providing background information necessary for staff to weigh in on decisions, and treating teachers as capable professionals whose insights are valuable. The question that arises is, if there is a management style of the principals which can encourage teacher participation in decision making process. This necessitated this study which sought to empirically ascertain the correlation



between teachers' perception of principal's participative and open communication teamwork practices and teachers' organizational citizenship behaviour in secondary schools in Anambra State, Nigeria.

RESEARCH QUESTIONS

Two research questions guided the study namely;

1. What is the nature of correlation between teachers' perception of principals' use of participative leadership and teachers' organizational citizenship?
2. What is the nature of correlation between teachers' perception of principals' use of open communication and teachers' organizational citizenship behaviour?

HYPOTHESES

Two hypotheses were tested at 0.05 level significance namely;

1. Teachers' perception of principals' use of participative leadership will not significantly correlate with teachers' organizational citizenship behaviour.
2. Teachers' perception of principals' use of open communication will not significantly correlate with teachers' organizational citizenship behaviour.

METHOD

The research design adopted for this study is the correlational survey design. The study area is Anambra State. The population comprised all the 6,382 teachers in the 261 state government owned secondary schools in the six education zones in the state namely Aguata, Awka, Ihiala, Nnewi, Ogidi and Otuocha education zones. The proportionate stratified and simple random sampling techniques were used to draw 689 teachers from the six education zones in the state. A researcher developed instrument titled "Teachers Perception of Principals' Participative and Open Communication Teamwork Practices and Teachers' Organizational Citizenship Behaviour Questionnaire (PPOCTOCBTQ), validated by experts was used for

data collection. The instrument is made up of three parts, A, B and C. Part A is on the background information of the respondents; Part B is on principals' teamwork practices while Part C is on Teachers' Organizational Citizenship Behaviour. The section B and C of the instrument are structured on a four point scale ranging from Strongly Disagree (SD), Disagree (D) Agree (A) and Strongly Agree (SA) weighted 1, 2, 3 and 4 respectively. The instrument was subjected to face validation by three experts who are lecturers, two in the Department of Educational Management and Policy and one in Measurement and Evaluation, Department of Educational Foundations, all in the Faculty of Education, Nnamdi Azikiwe University. The internal consistency of the instrument was verified using Cronbach Alpha and it yielded a co-efficient of 0.80 and 0.88 for part B and C respectively while the overall coefficient of the instrument was 0.88. A total of 689 copies of the questionnaire were administered by the researchers and six research assistants. Out of these 660 were correctly completed and collected. This number which represents a 95.8% return rate were used for data analysis. Data were analyzed using Pearson Product Moment Correlation Coefficient to answer the research questions and to test the hypotheses. All the hypotheses were tested at 0.05 level of significance. Decision rule was that items with correlation coefficient .80 to 1.00 would be regarded as having very high relationship and items with correlation coefficient 0.3-0.5 as having substantial and strong relationship (Best & Khan, 2006). For the hypotheses testing, a hypothesis was rejected if the probability (P) value obtained is less than the significant level of 0.05 where as a null hypothesis was not rejected if the probability (P) value obtained is greater than the significant level of 0.05.

RESULTS

The results are presented in tables according to the research questions and hypotheses.

Research Question 1: What is the nature of correlation between teachers' perception of principals' use of participative leadership and teachers' organizational citizenship behaviour ?

**Table 1: Pearson's correlation between teachers' perception of principals' use of participative leadership and teachers' organizational citizenship behaviour**

Source of Variation	N	Participative Leadership	Teachers' OCB	Remark
Participative Leadership	660	1.00	0.94	Very High Positive Relationship
Teachers' OCB	660	0.94	1.00	

The results in Table 1 show the Pearson's Correlation, $r = 0.94$. This shows that there is a very high positive correlation between teachers' perception of principals' use of participative leadership and teachers' organizational citizenship behaviour. This indicates that if there is an increase in principals' use of participative

leadership, teachers' organizational citizenship behaviour would also increase.

Research Question 2: What is the nature of correlation between teachers' perception of principals' use of open communication and teachers' organizational citizenship behaviour?

Table 2: Pearson's on teachers' perception of principals' use of open communication and teachers' organizational citizenship behaviour

Source of Variation	N	Open Communication	Teachers' OCB	Remark
Open Communication	660	1.00	0.64	Substantial Positive Relationship
Teachers' OCB	660	0.64	1.00	

Results on table 2 indicate that there is a substantial positive relationship $r =$ of 0.64 between teachers' perception of principals' use of open communication and teachers' organizational citizenship behaviour. The implication of this is that when principals create an open door policy, guide and encourage teachers by communicating important information, teachers will be

obliged to take risks inside and outside the classrooms for effective functioning of the school (sportsmanship)

Hypothesis One: Teachers' perception of principals' use of participative leadership will not significantly correlate with teachers' organizational citizenship behaviour

Table 3: Test of significance of Pearson's correlation between teachers' perception of principals' use of participative leadership and teachers' organizational citizenship behaviour.

Source of Variation	N	Participative Leadership	Teachers' OCB	p-value	Remark
Participative Leadership	660	1.00	0.94	.000	Sig
Teachers' OCB	660	0.94	1.00		

Data analysis in Table 3 shows that there is a significant correlation between teachers' perception of

principals' use of participative leadership and teachers' organizational citizenship behaviour. $r, (660) = 0.94, P-$



value $0.00 < 0.05$. The null hypothesis was therefore rejected.

Hypothesis Two: Teachers' perception of principals' use open communication will not significantly correlate with teachers' organizational citizenship behaviour.

Table 4: Test of significance of Pearson's Correlation between teachers' perception of principals' use of open communication and teachers' organizational citizenship behaviour

Source of Variation	N	Open Communication	Teachers' OCB	p-value	Remark
Open Communication	660	1.00	0.64		
Teachers' OCB	660	0.64	1.00	.000	Sig

Data analysis displayed in Table 4 show that there is a significant correlation between teachers' perception of principals' use of open communication and teachers' organizational citizenship behaviour, $r(660) = 0.64$, P -value $0.00 < 0.05$. The second null hypothesis was therefore rejected.

DISCUSSION

The findings of the study revealed that a significant positive relationship exist between principals' use of participative leadership and teachers' organizational citizenship behaviour. This finding concurs with Ahmed and Al-Hawary (2017); Amet, (2016); Belogovsky and Somech, (2010); Ibara (2011) and Somech and Oplatka, (2014) who revealed that participative leadership is the form of leadership most closely associated with teachers' organizational citizenship behaviour. This entails that principals should facilitate authentic participation by asking for the input of those affected by decisions, providing background information necessary staff to weigh on decisions and treating teachers as capable professionals whose insight are valuable. Regarding the relationship between principals' use of participative leadership and teachers' organizational citizenship behaviour Ike, Ezeh and Etodike (2017) reported that in order to increase organizational pro-social behaviour which has direct implication for performance and employee satisfaction at all levels, employee participation in decision making should be encouraged in organizations. This is also consistent with the findings of Agha, Nwakpa and Eze (2017), Oguz (2010); Q1 and Liu (2017); Runhaar, Konermann and Sanders (2013) who concluded that employees are satisfied with the implementation of modern administration in which the leader gives direction and then allows them complete freedom to accomplish the job. This is an indication that staff participation in decision making

motivates teachers to go the extra mile in teaching and learning.

Regarding the relationship between principals' use of open communication and teachers' organizational citizenship behaviour the study revealed that leaders open method of communication and organizational citizenship behaviour is significant. The findings support that Ugurlu and Sincar (2013) who concluded in their study on primary school teachers' views on communication skills and teachers' organizational citizenship behaviour that the better the inter-personal communication then the higher the level of OCB and on the other hand the poorer the interpersonal communication the lower the level of OCB. To date, teamwork practices which encourage staff participation in decision making and open method of communication have been a highly acclaimed leadership style; therefore its positive relationship with teachers' organizational citizenship behaviour is not surprising.

CONCLUSION

The major findings of this study revealed that there is a positive and significant correlation between principals' teamwork practices and teachers' organizational citizenship behaviour in secondary schools in Anambra State. From the analysis and interpretation of results, it is concluded that principals' teamwork behaviour are capable of bringing about teachers' organizational citizenship behaviour. This also implies that the stability, survival and success of schools fundamentally depend on teachers' willingness to exceed their official job description through the help of participative principals.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made:



1. Seminars and workshops on effective teamwork practices should be organized by the School Management Boards for Principals' from time to time.
2. Principals should make effort to ensure that their relationships with teachers are cordial by involving teachers in decision making of the school as this promotes teachers' organizational citizenship behaviour.

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AN OVERVIEW OF COMPARISON BETWEEN WHEAT RUSTS MYCOFLORA IN INDIA WITH GLOBAL SCENARIO

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ABSTRACT

Wheat rusts are the oldest plant disease known to human and caused by Puccinia species. Puccinia species are the main constraints in wheat production wherever wheat is grown. Early literatures mention these devastating diseases and their ability to destroy entire wheat crops. These wheat rust pathogens are highly transmissible through air current in both cases, primary and secondary infections. Primary infection occur through alternate host developing spore (Aeciospores) and secondary infection caused by wheat (primary host) developing spore (Uredospores). Secondary infection results epidemics, several time as globally occurrence. Ecologically, the persistence of rusts as a significant disease in wheat can be attributed to specific characteristics of the rust mycoflora. Their ability to spread aerially over the large distance, production of urediospores in enormous number and evolving new pathotypes, makes the management of wheat rusts a very daunting task. These characteristics include a capacity to produce a large number of spores which can be wind disseminated over long distances and infect wheat under favorable environmental conditions and the ability to change genetically, thereby producing new races with increased aggressiveness on resistant wheat cultivars.

KEY WORDS: *Wheat Rust, Puccinia, Rust Mycoflora, Stem Rust, Leaf Rust, Stripe Rust*

INTRODUCTION

Wheat is an important cereal crop and of the first domesticated food crops and from more than 10,000 years has been the basic staple food for most of the world.⁽¹⁾ It is grown in an area of about 222.28 million hectares in a range of environments with 724 million tonnes production worldwide (FAO-2016). India is leading producer of wheat (*Triticum aestivum*) in the world.⁽²⁾ It is the most important winter cereal crop in India and serves as the staple food for more

than one billion population. It contributes approximately 14% to the world wheat basket and holds the global share of 11% area under cultivation of wheat.⁽¹⁾ In India, wheat crop is grown mainly in the northern states, with Uttar Pradesh being the top-most contributor (35%) of wheat with a total production of 25.22 Million Tonnes, followed by Punjab (15.78 MT) and Madhya Pradesh (14.18 MT) (FAO-2016)

Wheat is a synonym to food security in India. However, production of wheat is always subject to



many biotic and abiotic constraints. Among the biotic causes, rusts (*Puccinia*= over 3,000 species) are very devastating pathogens of wheat worldwide⁽³⁻⁷⁾ and have no doubt been present and evolving during domestication of cereal crops as a major segment of agriculture.⁽⁵⁾⁽⁸⁾ *Puccinia* is largest group of rust fungi that parasitize a wide range of host plants in which Wheat (*Triticum* sps.) is chief one. Rust is characterized by megacyclic life cycle including uredo, teleuto, basidio, pycnidio and aecidio stage.⁽⁶⁾⁽⁹⁾ Some are completing their life cycle with single host (monogenetic) and some are sare two hosts (digenetic).⁽⁹⁾ In India about 716 species of *Puccinia* have been reported⁽⁹⁻¹⁰⁾ in which wheat crop is subjected to severe attack of all the three rust endemics to India viz., black or stem rust (*Puccinia graminis* f. sp. *tritici*), the brown or leaf rust (*Puccinia triticina*) and the yellow or stripe rust (*Puccinia striiformis*).⁽¹⁾

Yield losses caused by leaf rust epidemic are estimated at around 40% and losses due to stem rust and stripe rust can be as great as 100%. All the rusts of wheat are known to occur in India.⁽²⁾⁽⁶⁻⁷⁾⁽¹¹⁻¹²⁾ Rusts of wheat are shifty pathogens, capable of aerial spread, multiply geometrically and can cause epiphytotics. Alternate hosts are non functional and the rusts spread via repeating spore called urediospores through wheat.⁽⁵⁾⁽⁷⁾ After its germination, a series of essential structures for the establishment of a successful parasite relationship are formed.⁽⁵⁻⁶⁾ This review assessment of wheat mycoflora may be providing a satisfactory result in the research, managing and controlling of their cause.

HISTORY

Rust mycoflora of cereal have probably been a problem since the first cereal crops were grown. Spores of *Puccinia graminis* have been found in archaeological sites in Israel dated 1300 B.C.⁽¹³⁻¹⁴⁾ Rust was observed and recognized as early as the time of Aristotle (384-322B.C.).⁽¹⁴⁾ In 17th century, the French farmers had noticed that black stem rust was much worse in fields that surrounded by barberry bushes. Later, in the Rouen city of France was the first promulgate legislative measures perform in the year 1660 to control barberry bushes. At that time nobody knew that Barberries (*Berberis vulgaris*) were an alternate host of the stem rust life cycle (*Puccinia graminis*). The Italian researcher Fontana and Tozzetti independently provide the first detail report of stem rust of wheat in 1767.⁽¹⁵⁻¹⁶⁾ In 1865, the famous mycologist, Heinrich Anton de Bary discovered the complete life cycle of the stem rust and demonstrated that *P. graminis* required two different hosts (Wheat and Barberry bush) during the different stages of its development and thus discovered

the heteroecious nature of wheat stem rust pathogen. In 1927, the Canadian pathologist Johan Hubert Craigie successfully demonstrated that pycnia are the sexual structure of rust fungi and also designated two mating types (+) and (-) for haploid pycnia (spermatia and receptive hyphae) in wheat black rust (*P. graminis* f. sp. *tritici*).⁽¹⁷⁾ The causal organism of wheat stem rust was termed *Puccinia graminis* by Persoon in 1797. In early records, wheat leaf rust is not distinguished from stem rust.⁽¹³⁾⁽¹⁸⁻¹⁹⁾ However in 1815, de Candolle had shown that wheat leaf rust was caused by a different fungous and named *Uredo rubigovera*.⁽²⁰⁾ The pathogen of leaf rust underwent a number of name changes until 1956 when Cummins and Cald-well suggested *Puccinia recondite*.⁽²¹⁾ Currently the leaf rust of wheat pathogen preferred name *Puccinia triticina* purposed by Mains and Jackson in 1926 and recently by Savile (1984) and Anikster (1997).⁽²²⁻²⁴⁾ The stripe rust of wheat firstly described by Gadd in 1777⁽¹³⁾ and named by Eriksson and Henning in 1896 as *Puccinia glumarum*.⁽²⁵⁾ *Puccinia glumarum* name revived by Hylander et al. as *Puccinia striiformis*.⁽²⁶⁾ In India, the systematic investigations of wheat rusts were initiated by Professor Karam Chand Mehta from Agra College, Agra Uttar Pradesh during the 1922-1923. His outstanding contributions reported that the discovery of the life cycle of stem rust of wheat in India and epidemiology of wheat rusts. Through experimentation and circumstantial evidences, Prof. K. C. Mehta proved beyond doubt that barberry, an alternate host of wheat stem rust pathogen, does not play any functional role in the perpetuation of the rust fungus in India.⁽²⁷⁾ Wheat rust resistance breeding was also started in India during 1934 by Dr. B. P. Pal.⁽²⁸⁾

TAXONOMY

The rust mycoflora belong to family Pucciniaceae, order Uredinales of class Basidiomycetes and comprise a large group of obligate plant parasites. About 168 genera and approximately 7000 species are exist as rust pathogens to the plants, whereas more than half of species belong to genus *Puccinia*.⁽²⁹⁻³⁰⁾ The genus *Puccinia* was named in honor Florentian Physician and Teacher by P. A. Micheli.⁽³¹⁾ Among all reported rust fungi, *Puccinia* are the most Agricultural destructive and devastating rust mycoflora that causing different distinctive rust diseases.⁽³²⁾ In India, about 716 species of *Puccinia* have been reported.⁽⁹⁻¹⁰⁾ Three major type of rust mycoflora infects wheat; Stem rust or Black rust, Leaf rust or Brown rust and Stripe rust or Yellow rust. The causative agents of these wheat rust are *Puccinia graminis* f. sp. *tritici*, *Puccinia triticina* and *Puccinia striiformis* respectively.⁽³¹⁾



Systematic Position of Rust Mycoflora (<i>Puccinia</i> sps.)	
Kingdom	Fungi
Division	Amastigomycotina
Sub-Division	Basidiomycotina
Class	Basidiomycetes
Order	Uredinales
Family	Pucciniaceae
Genus	<i>Puccinia</i>
Species	<i>graminis</i> , <i>tritricina</i> , <i>striiformis</i>

HOST SPECIFICITY

Host ranges of rust mycoflora are wider, diversified and considered as one of the most harmful pathogens in agriculture, horticulture, forestry and medicinal plants. Unlike other mycoflora, Rust exhibit one of the most important characteristic of their exceptionally high degree of host specificity.⁽²⁹⁾ Rust disease are caused by highly specific fungal pathogens that commonly known as rust mycoflora. These rust mycoflora are restricted in host specificity. More than 5000 rust mycoflora species are estimated that attack on different crops, grasses etc.⁽³¹⁾ In India, wheat rust has specified host for three different rust mycoflora that all cause different rust pathogenesis. These wheat rust mycoflora are also generally specified on plant parts as causative locality. Wheat rusts are Stem rust caused by *P. graminis* f. sp. *tritici*, Leaf rust caused by *P. triticina* and Stripe rust caused by *P. striiformis*. Primary host of Stem rust (*P. graminis* f. sp. *tritici*) is wheat, barley and triticale with alternate host *Barberis*. *P. triticina* is primarily pathogens of wheat, and its immediate ancestors are manmade crop triticale. Leaf rust population exists in Europe, Asia (India) and Africa that are primarily pathogens of durum wheat.⁽³³⁾ In the life cycle of leaf rust, sexual stage develop (gametes) on alternate hosts *Thalictrum*, *Anchusa*, *Isopyrum*, *Clematis* etc.⁽²⁴⁾ Primary host of stripe rust (*P. striiformis*) is cereals (wheat) and some grasses with any no alternate host, because only telial and uredinal stages are present in their life cycle.⁽³⁴⁾

PATHOGENECITY

The rust mycoflora is a group of fungi that are among the most destructive plant pathogen in the world as well as India. Their sever attacks occur on cereal grain crops. The diverse species may attack many grass hosts, with cereal crop specially wheat.⁽³¹⁾ For the germination and growth of rust pathogens, water on the leaf surface from intermittent rain or heavy dew and temperature are required. To initiation and development of infection, rust require an average temperature up to 35°C with 50-60% relative humidity.⁽²⁹⁾ In optimal condition (Table-1) rust disease infection development completed into 6-8 hrs. and Uredospores capable to causing secondary disease spreading produced in 7-10 days.⁽³⁵⁾ Uredospores are relatively more viable (about 1 year) than other spores of rust pathogens and also highly spreading efficiency because they are produced in large quantity and light in weight so they are extremely efficient and responsible for disease spreading.⁽⁵⁾⁽³⁶⁾ In case of new infection, alternate host not always required because Uredospores are able to initiate infection one year later also.⁽³⁵⁾ Whereas barberry is the most dangerous source of primary inoculum of stem rust in temperate regions. Nearly growing barberry of wheat fields, will be a consistent source of Aeciospores for the earliest infection of wheat during spring.⁽¹⁴⁾ Rusts may debilitate or kill young wheat plants but more typically reduce foliage root growth and yield by decreasing photosynthesis, increasing respiration rate, and decreasing translocation of carbohydrates. They move carbohydrates to the area infected and use them for growth. Uredinia produce the summer rust spores and Telia produce the overwinter spores. The occurrence of rust in spring and summer can continuously re-infect the wheat crop and hence cause epidemics. Severity of wheat rust in India cause epidemic several times (Table-2). Wheat rust has been recorded in India with documented evidence from the years 1786, 1805, 1828-29, 1831-32, 1879, 1887 and 1907. Whereas 17 identified epidemics of wheat rust in India between 1786 to 1956 are reported.⁽³¹⁾



Stage	Temperatute (°C)			Light	Water
	Minimum	Optimum	Maximum		
Stem Rust (<i>P.graminis</i> f. sp. <i>tritici</i>)					
Germination	2	15-24	30	Low	Essential
Germling	-	20	-	Low	Essential
Appressorium	-	16-27	-	None	Essential
Penetration	15	29	35	High	Essential
Growth	5	30	40	High	None
Sporulation	15	30	40	High	None
Leaf Rust (<i>P. triticina</i>)					
Germination	2	20	30	Low	Essential
Germling	5	15-20	30	Low	Essential
Appressorium	-	15-20	-	None	Essential
Penetration	10	20	30	No Effect	Essential
Growth	2	25	35	High	None
Sporulation	10	25	35	High	None
Stripe Rust (<i>P. striiformis</i>)					
Germination	0	9-13	23	Low	Essential
Germling	-	10-15	-	Low	Essential
Appressorium	-	-	Not Formed	None	Essential
Penetration	2	9-13	23	Low	Essential
Growth	3	12-15	20	High	None
Sporulation	5	12-15	20	High	None

Table-1: Optimal environmental condition for wheat rust establishment⁽⁴¹⁾

Rust Epidemic year (in India)	Rust type	Wheat Production Losses (in Million Tonnes)	Value of Losses (in Million US\$)
1945-49	Stem Rust	2.0 MT	296 MUS\$
1971-72	Stem and Stripe Rust	0.8 MT	118 MUS\$
1972-73	Stem and Stripe Rust	1.5 MT	222 MUS\$
1980	Leaf Rust	1.0 MT	148 MUS\$

Table-2: Rust epidemics in India and their effects on wheat crop⁽³¹⁾

LIFE CYCLE

Rust mycoflora have complex life cycles that require two specific different host plant-Primary host (wheat) and alternate host except stripe rust. In their life cycle may have five different stages (spores).⁽³⁵⁾ In case of stem rust and leaf rust has five distinct sporic stages (Fig.-1 and 2) Pycnial stage (0), Aecidial stage (1), Uredial stage (2), Telial stage (3) and Basidial stage (4). Pycnial stage is called stage-0 because before 1927 the role of Pycnial stage in the life cycle of rust was not understood.⁽¹⁷⁾ Stage-0 (Pycnial) and Stage-1 (Aecidial) occur on alternate hosts in their life cycle. Stripe rust consist only Uredial stage and Telial stage in their life cycle (Fig.-3).⁽³⁷⁾

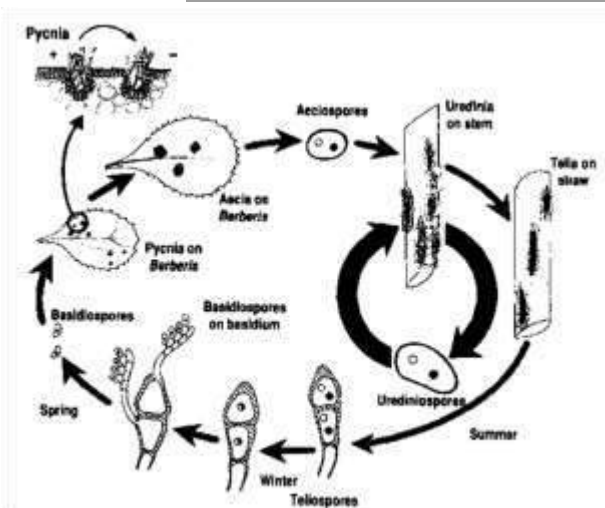


Fig.1 Life Cycle of *Puccinia graminis* (Stem Rust)

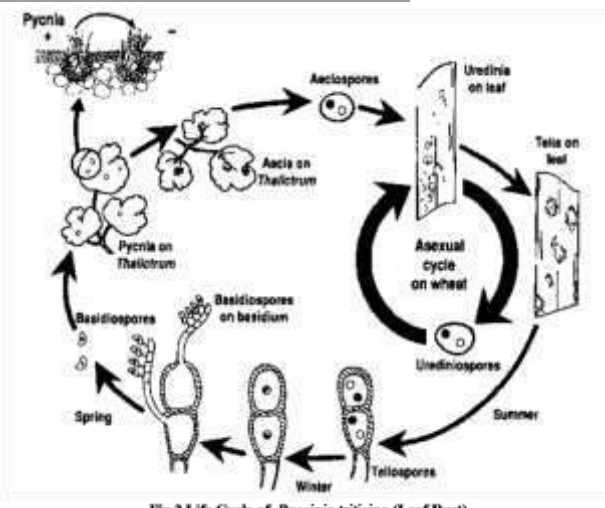


Fig.2 Life Cycle of *Puccinia triticina* (Leaf Rust)

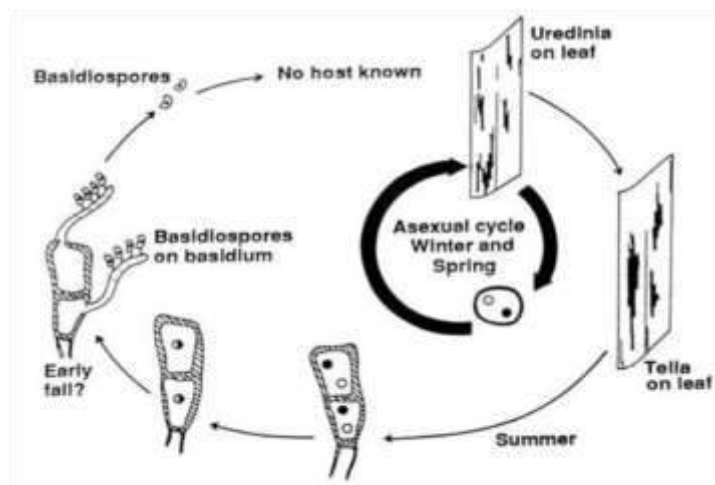


Fig.3 Life Cycle of *Puccinia striiformis* (Stripe Rust)

TRANSMISSION

Rust pathogens are able to spread over long distance. The spreading of rust is takes place by sporic stage through wind.⁽³⁷⁾ In case of all sporic stage, Uredospores are highly viable and transmissible via wind.⁽³⁵⁾ Wheat rust known to survive and carry over to the next generation with the help of Uredospores which are called as repeating spores.⁽¹⁷⁾ An identical biochemical patterns and connective wind from Australia indicate long distance dispersal and deposition of viable Uredospores across 5000 Km. Of ocean from Southern part of Africa to that of Australia.⁽¹⁷⁾ Uredospores are produce in large quantity as well as light in weight that a resion to spread very long distance and infect new host wheat.⁽³⁵⁾ Aeciospores are develop on alternate hosts and also spread via wind in nearly located crop fields and cause early infection to the host plants (wheat).⁽¹⁴⁾

SYMPTOMS

Three rust diseases occur on wheat- stem rust, leaf rust and stripe rust. These disease are caused by particular species of rust mycoflora belongs to *Puccinia* sps. There are all the rust produce mostly similar disease symptoms. The rust infected plant may appear stunted, chlorotic (yellowing) or discolored whereas, disease symptoms includes coloured pustules, witches blooms, stem canker, hypertrophy of affected tissues of formation of galls.⁽²⁹⁾ The name of rust disease also given by their appearance on the host plant (wheat) like stem rust as black rust, leaf rust as brown rust and stripe rust as yellow rust. Infection of rust occurs on only shoot parts of host plant (wheat) and leading to the production of pustules that contains thousands of spores. These pustules give the appearance of “Rust” on wheat.⁽³⁵⁾ Stem rust symptoms (Fig.4) begin as oval to elongate lesions on stem generally (also on leaves,



sheath etc.) as reddish-brown in color. In severe case, pustules produce numerous black sooty spores and many stem lesions may weaken plant shoot and result in lodging.⁽³⁶⁾⁽³⁸⁾ Leaf rust symptoms (Fig.5) begin as small circular to oval yellow-brown spots on upper surface of infected leaves of wheat. Later the spots develop as brown or orange coloured pustules that produce a large number of spores as like brown dust on the leaf surface. In this the pustules dose not develop as

lesions like stem rust.⁽³⁶⁾⁽³⁹⁾ In Stripe rust symptoms (Fig.6) would appear about a week after infection. Sporulation starts about two weeks post infection.⁽³⁷⁾ Stripe rust begin by production of light yellow coloured pustules in stripe of leaves and mature pustules produce yellow-orange spores.⁽³⁶⁻³⁷⁾ Chlorosis or Yellowing of leaves are quit appearance on both leaf and stripe rust and easily detectable.⁽³⁵⁾

**Fig.4 Stem Rust****Fig.5 Leaf Rust****Fig.6 Stripe Rust**

PREVENTION

Only one of the versatile prevention methods for avoiding rust disease or minimizing their impact is to plant a variety with known resistance. It is the most economical method of control. Destroying previous wheat plants and volunteer wheat, by tillage or herbicide, is another important step in the prevention of several disease including wheat rusts. The elimination of green bridge between wheat crops will help in prevents mechanism. Crop rotation is also very helpful to reducing disease carryover because rests are host specific.⁽³⁵⁾ The key points for prevention of wheat rusts has always been to avoid large scale planting of similar varieties (single genotype) and deploy varieties with diverse resistance, if possible then resistance based on more than one effective gene. It will not only delay the epidemics of wheat rusts but also increase the self-life of wheat varieties and discourage the evolution in pathogens (rusts).⁽¹⁷⁾⁽⁴⁰⁾ In the case of stem of wheat, the alternate host (Barberry) played an important role in

sexual variability. However the eradication of barberry has reduced the influence of the sexual cycle of the disease (rust).⁽³¹⁾

GLOBAL SENERIO OF WHEAT RUSTS

Wheat was among the first of the domesticated food crops and for more than 10,000 years has been the basic staple food for most of the world. It is the most widely grown cereal crop in the world and one of the central pillars of global food security.⁽¹¹⁾ Globally the main threads of wheat security is rust that cause several epidemics (Table-3). The world wide scenario of wheat rusts specifying through historical and current evolution (Table-4). Wheat rust is globally present as endemic as well as epidemic hot spots in wheat developing countries covering large areas (Table-5).



Country	Rust Type	Year	Total Epidemic area of Wheat
Pakistan	Stripe Rust	1977-78	10-20%
Mexico	Leaf Rust	1976-77	70%
Ethiopia	Stem Rust	1993-94	90%
South America (Southern Cone)	Leaf Rust	1996	Unknown
Argentina	Leaf Rust	1999 & 2003	Unknown

Table-3: Global epidemics of wheat rusts⁽³¹⁾

Zone	Stem Rust		Leaf Rust		Stripe Rust	
	Current	Historical	Current	Historical	Current	Historical
Africa						
North	Local	Major	Major	Major	Local	Local
East	Major	Major	Local	Local	Major	Major
Southern	Local	Major	Local	Local	Local	Rare
Asia						
Far East	Local	Major	Local	Local	Major	Major
Central	Minor	Minor	Major	Major	Local	Local
South	Minor	Major	Local	Major	Local	Local
Southeast	Minor	Minor	Major	Major	Rare	Rare
West	Local	Major	Local	Local	Major	Major
Europe						
East	Minor	Major	Major	Major	Local	Local
West	Minor	Major	Local	Major	Major	Major
North America	Minor	Major	Major	Major	Local	Local
South America	Local	Major	Major	Major	Local	Local
Australia	Local	Major	Local	Local	Local	Rare

Table-4: Current and Historical Scenario of wheat rusts for the epidemiological zones⁽⁴²⁾

Rust Type	Yield Loss Percentage		Endemic total area of Wheat Percentage	Hot Spots of Rust Disease
	In Endemic	In Epidemic		
Stem Rust	40%	~100%	50%	Kenya, Ethiopia, Brazil, Parana State, South India
Leaf Rust	15-20%	~50%	90%	Mexico, India, Pakistan, Bangladesh, China
Stripe Rust	40%	~100%	33%	South America, East Africa, North Africa, Indo-Gangetic Plains of India and Pakistan

Table-5: Summary of losses caused by rust disease in developing countries⁽³¹⁾

CONCLUSION

In the present article, we are concluding that the wheat rust mainly three types and share specific hosts with may include alternate hosts and their symptoms (Table-6). Rusts mycoflora have an excellent ability to vary via mutation. Some rust pathogen may also vary through sexual reproduction and thus overcome resistance genes. The favorable environmental condition of wheat rusts likewise High temperature for Stem rust, Moderate temperature for leaf rust and Low

temperature for stripe rust to the virulence of infection. Wheat rust transmits through air current. The initiation of infection takes place by primary and secondary whereas, the primary infection caused by Aeciospores that develop on alternate hosts and secondary infection caused by Uredospores that develop on wheat and also a resion to become epidemics. Through the eradication of bushes (alternate host) and crop rotation, is a way to prevent wheat rust effectively. The Control of wheat rusts may apply through biological (through biotic



effect), chemical (fungicides, weedicides etc), and mechanical methods.

Disease	Pathogen	Primary Host	Alternate Host	Symptoms
Stem Rust	<i>P.graminis</i> f. sp. <i>tritici</i>	Wheat <i>Triticum aestivum</i>	Barberry <i>Berberis vulgaris</i>	Isolated Uredinia on upper and lower surface of leaf, stem and spikes
Leaf Rust	<i>P. triticina</i>	Wheat <i>Triticum aestivum</i>	<i>Thalictrum</i> , <i>Anchusa</i> , <i>Isopyrum</i> , <i>Clematis</i>	Isolated Uredinia on upper surface of leaf surface and rarely on leaf sheath
Stripe Rust	<i>P. striiformis</i>	Wheat <i>Triticum aestivum</i>	Unknown	Systematic Uredinia on leaves, spikes and rarely on leaf sheath

Table-6: Summary of wheat rusts⁽⁴¹⁾

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THEORETICAL BASIS OF INTEGRATIVE MODULES ELABORATION FOR ENHANCEMENT OF FOREIGN LANGUAGE COMMUNICATIVE COMPETENCE IN THE PROFESSIONAL DOMAIN OF STUDENTS

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ABSTRACT

The present study aims to analyze the role of teaching foreign language communicative competence in developing professional skills of students in higher educational institutions. The competency-based approach is becoming an integral part of the modern educational process in the higher education system. For this, objective processes of development of the world community are objective factors in the need for knowledge of a foreign language. In this respect, teaching a foreign language, in accordance with the program, is based on competency-based approach, integrative approach, personality-oriented approach focused on communicative activities. However, the development of a foreign language communicative competence in the professional domain based on the technology of modular training helps to increase the student's motivation to the educational material, the module, stimulate cognition and active creative thinking.

KEY WORDS: *foreign language communicative competence, modular training, integrative modules, competency-based approach, integrative approach, personality-oriented approach, pedagogical taxonomy, professional vocabulary.*

I. INTRODUCTION

Knowledge has become the basis for the functioning and development of modern society. It essentially represents an information society.

In the information society, it has become completely not enough just to acquire knowledge, skills and abilities, but the development of the abilities to use them, experience and the ability to learn has become the most important. A graduate of a higher school must be sociable, be able to work together, and constantly develop his/her moral and cultural level.

It follows that they relate to the goals, results and pedagogical learning technologies from the essence of the requirements of the information society to higher education.

There is a clear confusion from cognitive education towards qualification and from it to competence in the development trend of education:

It is noted "More and more often entrepreneurs do not need qualifications, which, from their point of view, are too often associated with the ability to carry out certain operations of a material nature, and competence, which is seen as a kind of cocktail of skills inherent in each person, which

combines qualifications in the strict sense of the word ... social behavior, the ability to work in a group, initiative and love of risk" in the report of the international commission on education of UNESCO "Education is a hidden treasure" (Musinov S. (Eds). 2014) [15].

That is, the competency-based approach is becoming an integral part of the modern educational process in the higher education system.

The competency-based approach is the priority orientation of education towards its results: the formation of the necessary general cultural and professional competencies, self-determination, socialization, the development of individuality and self-actualization (Troyanskaya S.L. 2016) [25].

For the first time the concept of "competence" was proposed by N. Chomsky in 1965 at the University of Massachusetts, in relation to the theory of language. He clearly distinguished the concepts of "competence" and "competence": "we make a fundamental distinction between competencies (knowledge of the language) and use (real use in situations)...." (Musinov S. (Eds). 2014) [15]. J. Raven was the first to use the categories of competence / competence in relation to



professionalism in management, leadership, management, in teaching communication (Musinov S. (Eds). 2014) [15].

New educational results in higher education, called competence, are considered as the ability to solve complex real problems - professional and social activities, ideological, communicative, and personal.

N. Chomsky (1957), J. Raven (2002), I.A. Winter, S.L. Troyanskaya (2016), A.V. Khutorsky (2003), S. Musinov and Eds (2014), and many other scientists also contributed to the formation and development of the competency-based approach in education [7,21,25,14,15].

II. METHODOLOGY AND METHODOLOGICAL FOUNDATIONS.

2.1. The professional competences

Knowledge of a foreign language becomes relevant for specialists in the modern conditions of globalization of the world economy, including the development of a network of world corporations, joint ventures, integration processes in the field of science, engineering, technology, education, intensification of interstate relations.

Globalization is a process of worldwide economic, political and cultural integration and unification. The main consequence of this is the world division of labor, migration throughout the planet of capital, human and production resources, standardization of legislation, economic and technological processes, as well as the convergence of cultures of different countries (Seyitkhalilov E.A., Rakhimov B.Kh. 2011) [23]. This is an objective process that covers all spheres of life in the information society. The processes of globalization accelerated in the second half of the 20th century, which was facilitated by the fantastic achievements of scientific and technological progress, which infinitely increased the possibilities of transport and communication. This contributed to the intensification of international trade, international relations, and an increase in the number of transnational companies.

These objective processes of development of the world community are objective factors in the need for knowledge of a foreign language.

This objectivity, for example, is formed in one of five key competences adopted by the Council of Europe (Seyitkhalilov E.A., Rakhimov B.Kh. 2011) [23]:

- "Competences related to the mastery of oral and written communication, which are especially important for work and social life, with an emphasis on the fact that those people who do not master them are at risk of social exclusion. In the same context of communication, knowledge of

more than one language is becoming increasingly important".

Consequently, foreign language professional communicative competence (Competence in profession. Henceforth, I will refer to it as professional competence) becomes an integral structure-forming component of the professional activity of a specialist with higher education.

2.2. Foreign language professional communicative competence

Foreign language professional communicative competence of a future specialist with higher education is an integrative personality trait characterized by the volume and nature of the acquired knowledge, skills, foreign language skills and professional communication ethics, as well as habits, qualities and properties that are realized in future professional activities (Iskandarova O.Yu. 2000) [12].

On the development of the theory and practice of foreign language professional communicative competence of students, the contribution of the following scientists-teachers can be noted:

- Communicative approach - Holliday M.A.K. (1975) [11], R. Roskey (1983) [22], Zimnyaya I.A.(2003) [27], Iskandarova O.Yu. (2000) [12] and many others.

- Context - academic approach - Di Pietro (1996) [9], Helping R.J.(.) [11], Iskandarova O.Yu. (2000) [12] and many others.

To clarify the tasks of linguistics, the following approaches can be distinguished:

- Chomsky N. (1957) "Linguistic theory is primarily concerned with the ideal speaker - a listener in a completely homogeneous speech community, who knows his language perfectly and is not subject to such grammatically insignificant conditions as memory limitation, distraction, displacement of attention, interest and errors (random characteristic) in the application of their knowledge of the language in real work" (Chomsky N. 1957) [8];

- Holliday M.A.K. (1975) "Linguistics deals with the description of speech acts or texts, since only through the study of the language used, all the functions of the language and, therefore, all the components of meaning become the subject of attention" [11].

Teaching a foreign language, in accordance with the program, is based on the following approaches: competency-based approach, integrative approach, personality-oriented approach focused on communicative activities.

An integrative approach - involves the development of foreign language communicative competence, professional competence, social competence based on the integration of knowledge, skills, abilities and experience acquired in the study of special, general professional and social educational disciplines.



The most progressive is the modular learning technology of the student-centered learning technologies, as it is the best way most adapted to:

- the system of perception of the brain, which has a neural organization, which in the best way perceives information in the form of quanta (certain portions);

- the credit organization of the educational process, since the modules are formed on the basis of the distribution of students' labor costs by academic discipline, that is, taking into account classroom hours and independent work;

- the use of a competency-based approach, when each module is responsible for the student's mastering of certain competencies;

- the use of pedagogical technology, due to the fact that the modules are formed on the basis of the selected basic concepts of the academic discipline with the establishment of categories of educational goals using pedagogical taxonomy.

Taking into account the development trends of integration processes in the field of higher education and the merits of modular education, the Concept for the Development of the Higher Education System of the Republic of Uzbekistan provides for: “- stage-by-stage transfer of the educational process of higher educational institutions to a credit-modular system” (Decree of the President of the Republic of Uzbekistan. 2019) [1]. The first stage of this translation is the academic year 2020/2021 (Order of the Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan. 2020) [2].

2.3. Modular training system

For the first time, a modular training system was expressed at the UNESCO World Conference in Tokyo 1972. It is based on a “module”. There are many definitions of “module”, including:

- this is a training package, covering a conceptual unit of educational material and prescribed actions for students (J. Russell. 1974) [20];
- it is a block of information that includes a logically completed unit of educational material, a targeted action program and methodological guidance that ensure the achievement of the set didactic goals (P.A. Yusavichene. 1990) [26];
- it is a functionally complete unit that is part of a certain system and has the property of replace ability (Seyitkhalilov E.L., Rakhimov B.Kh., Madzhidov I.Kh.2011) [23].

III. THE ANALYSIS AND INTERPRETATION OF RESULTS

From the analysis of the considered and other definitions of the concept of “module”, it follows that a module in the technology of modular training is a

block of information (the fundamental concept of an educational discipline, a major topic, a law, a phenomenon), representing a conceptual logically completed unit of educational material, built on the basis of developed for teaching one or more competencies with the property of substitutability.

Scientific and methodological works are devoted to the development of the theory and practice of modular training: Russell J.D. (1974), Owens G. (1998), V.V. Karpova, M.N. Katkhanova, L.N. Tretyakov (1997), I.B. Sanovsky, N.V. Borodina, E.S. Samoilova (1998), M.N. Navosyolov (2013), P. Yusavichine, U.N. Nishonaliev (2002), N.Kh. Avliyakov, N.N. Musaeva (2012), T.I. Kapranchuk (2012) [20, 19, 24, 6, 18, 17, 4, 13].

The development of modules based on integrative and competency-based approaches for teaching a foreign language is the most difficult didactic task, since it includes many interrelated components of a specific nature. The technology of creating such modules can be considered as a separate concept “*Integrative modules of foreign language communicative competence of students in professional domain*”.

These modules, reflecting the objective integrity of the systemic connections of professional competence and communicative competence, contribute to improving the quality of training of specialists and their adaptability to the dynamically changing content of professional activity in the context of globalization and the development of the information society.

The development of a foreign language communicative competence in the professional domain based on integrative and competency-based approaches, based on the technology of modular training, can be considered an objective reality because only in the module it is possible to integrate individual parts of individual academic disciplines into a certain logically completed unit of educational material. In this case, the module focuses on achieving a certain competence, which, as a rule, is of a systemic nature. In essence, such a module is an “*Integrative modules*”. This allows us to consider that modular training is the best adapted to the peculiarities of the development of a foreign language communicative competence in professional domain. Summarizing all above, it can be noted that in the conditions of the dominance of the competent approach in higher education, modular training dominates, and pedagogical technology contributes to their most effective implementation. This is confirmed by the trends in the development of higher education:

- in the federal state educational standards of the new generation of the Russian Federation, the module is given the following definition: “A module is a set of parts, academic discipline (course) or academic disciplines (courses) that has a certain



logical completeness in relation to the established goals and the result of education, training, that is, it is responsible for the development of a particular competence or groups of competencies” (Kapranchuk T.I. 2012) [13];

- Educational programs of the Bologna Declaration, characterized by a competency-based approach and modularity (Troyanskaya S.L. 2016) [25].

The carried out researches made it possible to establish that the development of foreign language communicative competence in the professional domain of students is most efficiently carried out on the basis of modular training using an integrative approach.

Based on the integration of the fundamental provisions of the competency-based approach, pedagogical technology and modular training, the methodology of teaching a foreign language, we have developed principles for the development of foreign language professional communicative competence of students of non-language higher educational institutions, which are the theoretical basis for the development of integrative modules for teaching a foreign language. These include:

1. *The principle of the competency-based approach* means the development of students' abilities to solve problems independently in various fields and types of activity in the context of modern Globalization and the development of the information society based on the use of social experience. That is, the content of education should be a didactically adapted problem-solving experience. Educational material, exercises mastered in foreign language classes in the higher education system should be focused on the future activities of a specialist, including professional, scientific and social spheres. This principle requires:

- that the educational material on the discipline of “Foreign language” reflects the current state of the accumulated experience of activities in the framework of a specific direction of education and development prospects;

- “teach to learn” in order to use a foreign language to continuously improve professional competence in the process of work through the use of foreign scientific and technical information, communication in various forms with foreign specialists. It follows from this that the educational process acquires new content, in which the learning process turns into a process of mastering knowledge and experience. This is consistent with the individual's need to effectively integrate into modern professional and social activities, and with the need of society itself to maximize the potential of the individual.

2. *The principle of an integrative approach* means that teaching a foreign language should be carried out on the basis of knowledge, skills, and

abilities acquired in the study of professional and other disciplines that contribute to the simultaneous development of professional communicative and social communicative competencies.

This principle is implemented most effectively under the following conditions:

- Organization of scientific research work, search work on the problems of professional activity in a foreign language within the context of a contextual approach.

3. *The principle of motivation* means the formation of value orientations towards learning a foreign language. The main value component is the formation of the student's desire to develop students' professional competence through the achievement of knowledge of a foreign language. Possession of knowledge, skills, abilities to use the language are necessary for the continuous improvement of professional competence on the basis of systematic familiarization with modern foreign achievements in the field of professional activity from foreign scientific and technical information, materials and reports of international conferences, communication with foreign experts, and the implementation of joint projects. Orientation on the value qualities of knowledge of a foreign language should be carried out from the first day of the beginning of training in a higher educational institution.

The principle requires the achievement of such a level of motivation, at which the student would fully realize the need for the continuous development of a foreign language professional communicative competence, to ensure his/her constant demand as a specialist in the dynamically developing globalization of the world economy.

4. *The principle of reliance on professional vocabulary* means the development of a foreign language professional communicative competence of students for the implementation of activities in the scientific and professional sphere on the basis of allocation, grouping and modular assimilation of the basic concepts of the direction of education.

Professional vocabulary is a set of terms and basic concepts of a certain direction of education.

In the conditions of the modern information society, with the intensive growth of the volume of knowledge, the effective assimilation of sciences becomes possible, first of all, on the basis of the assimilation of their conceptual apparatus. Each direction of education has its own conceptual apparatus, which includes specific terms and basic concepts.

In the form of a concept, the assimilation of a system of scientific knowledge takes place, which is systematic and have clear signs. Therefore, they are recognized and adopted by pedagogical technologies; underlie the design of the learning process and the assessment of educational results. It follows from this that the assimilation of terminology and the



definition of basic concepts, the direction of education in foreign language classes is the key to the formation and development of foreign language professional communicative competence of students.

5. *The scientific principle* means that the educational material for the study of a foreign language (module) must have scientific significance and contribute to the development of the students' professional competence. This is in demand by the peculiarities of the development of the modern information society, functioning in the context of the globalization of the world economy. In these conditions, modern specialists constantly need to know a foreign language, for systematic familiarization with foreign scientific and technical information and advanced experience in the field of their professional activities. Only then can he/she be a successful specialist. Taking this into account, the scientific nature of the educational material of the module helps to increase the student's motivation to the educational material, the module, stimulate cognition and active creative thinking. The implementation of this principle is carried out during the independent work of students, when he/she searches for scientific material from foreign sources on the subject of each module, assimilates this material and writes an essay.

6. *The principle of purposefulness* means the establishment of a clear, unambiguously understood system of educational goals for an educational discipline with their classification into categories and sequential levels using pedagogical taxonomy, which are the basis of pedagogical technology.

The most common taxonomy of educational goals is the taxonomy developed by the American educational scientist, B. Bloom in 1956 [5]. This taxonomy includes six categories of learning goals: knowledge, understanding, application, analysis, synthesis, evaluation. During the period of its existence, this taxonomy has been repeatedly subjected to attempts at clarification and modernization, including by L. Anderson (2001) [3], V. Gerlach (1967) [10], and others.

In order to adapt this taxonomy to the educational process of higher education in the modern information society, domestic scientists proposed to supplement it with two categories of educational goals: "representation" as the initial stage of mastering knowledge and "attitude" as the highest category of educational goals, characterizing the formation of student's attitude to the identified problem (Avliyakov N.H., Musaeva N.N. 2012) [4].

The use of pedagogical taxonomy is carried out with the help of verbs adequate to the categories of educational goals. That is, the educational goal should be described so that its achievement could be judged unambiguously. The categories of educational goals of the basic concepts, the module of the

educational discipline as a whole are established on the basis of the education standard, the curriculum, taking into account the role of the discipline in the future professional activity of the student and characterizes the level of mastering the educational material. This principle contributes to the establishment of unambiguously understood and measurable educational goals - the assessment of the achievement of educational results in the development of foreign language professional communicative competence of students.

7. *The principle of the modular-linguistic approach* means the development of integrative modules, in which each module is responsible for the mastering of certain linguistic competencies by students. The integrative module is a logically complete unit of educational material, covering a group of interrelated basic concepts of the direction of education on the relevant topic, aimed at mastering the prescribed number of linguistic competences by students. Modularity: ensured by the gradual assimilation of educational material, when training goes from simple to complex for each module; manifests itself in the variability of the forms and methods of mastering each module; characterized by the flexibility of the training elements of the module, which allows updating the training material in accordance with new scientific achievements.

The structure of the integrative module creates conditions for the use of competency-based, communicative and personality-oriented approaches in the process of learning a foreign language. At the same time, it becomes possible to individualize training and independently master the educational material, acquire the skills of independent creative work with foreign scientific literature in the desired direction of education. In essence, integrative modules provide the acquisition of not only knowledge, skills and abilities, but also the experience of their application, the development of professional competence and the student's personality.

8. *The principle of the development of the student's personal qualities* means the constant expansion of his/her capabilities, the rise of his/her needs. For a person, not only his/her position is essential, but also the ability to realize his/her relationship. It depends on the level of development of a person's activity capabilities and activity, his/her abilities, knowledge, skills, emotionally volitional and intellectual qualities.

The activity of the individual is manifested in creative activity, volitional aspects, communication. At the heart of the modern scientific, technical and social process lies precisely the activity of the individual, which makes specific requirements for training and education. In the system of higher education, a significant role belongs to the stimulation of creative activity, which requires the



teacher to create such learning conditions that arouse interest in learning, the need for knowledge, the emergence of cognitive interests, the desire to independently search for solutions to problems.

IV. DISCUSSION

Stimulating cognitive activity is promoted by active teaching methods.

These teaching methods involve modeling the subject and social content of the student's future professional activity, which is already associated with the teacher's competence. Thus, this principle requires that the inclusion of the student himself/herself at the level of personal and social activity should be considered the strategic direction of enhancing learning.

The most effective way to achieve a high level of cognitive motivation in a higher educational institution is to implement a competency-based approach in modular training.

The use of integrative modules for the development of foreign language professional communicative competence of students in the process of teaching a foreign language guarantees the achievement of a high level of cognitive motivation and learning outcomes. Since, they are based on personality-oriented, integrative, communicative competency-based approaches.

Modular training allows:

- Optimal planning of individual work and independent education of students, since the module is an independent structural unit of educational material. At the same time, it becomes possible to implement differentiated learning;

- Use of modular control of learning outcomes at the level of assessment of observed actions;

- ensuring the individualization of training, activation, independence, maximum realization and development of students' abilities.

The determining factor in ensuring the effective development and implementation of integrative modules for the development of foreign language professional communicative competence of students in non-language higher educational institutions is the competent training of teachers of a foreign language in a particular direction of education. For the formation of such readiness, we propose a technique based on the following provisions (Musinov S., Kubaev S., Kholmurodova N. 2017) [17]:

- *Development of the teacher's motivation for modular learning*, which implies a thorough study of the state standard in a foreign language. At the same time, the teacher is fully aware that the mastery by students of competencies based on professional vocabulary provided for by the standard is possible only with modular training. Along with this, the

function of a foreign language teacher is to form motivation for learning a foreign language. The student must realize deeply that in the conditions of the intensive globalization of the world economy, his/her successful professional activity is impossible without mastering a foreign language at the level of independent communication in the professional scientific and social spheres.

- *Assimilation of the theoretical foundations of pedagogical technology*, modular training. When implementing a competence-based approach in higher education, the educational goal should be formed so that it is understood absolutely unambiguously. For this, pedagogical taxonomy is used. At the same time, it is possible to guarantee the achievement of the planned learning outcomes, the mastery of the necessary competencies by students. This presupposes that the teacher will acquire the skills to apply pedagogical taxonomy.

For the successful development of modular training technology, including integrative modules, it is necessary for teachers to master the principles on which they are based.

- *the acquisition of knowledge and skills using the laws of synergetic*, the science of studying the processes of transition of complex systems from a disordered state to an ordered one, revealing the connections between the elements of this system, in which their total action within the system exceeds in its effect the simple addition of the effects of the actions of each of the elements separately. It is obvious that synergetic is essentially the fundamental basis of the systems approach, which in turn is one of the foundations for the development of modular training technology, the organization of the modern educational process as a whole.

- *mastering by teaching the basic principles of student-centered learning technologies, which is modular training*. With the traditional authoritarian teaching technology, the teacher is the sole subject of the pedagogical process, and the student is only an "object". At the same time, the initiative and independence of the student is suppressed. The teacher is the one-man/woman. With such an organization of the pedagogical process, the personality does not develop.

With personality-oriented learning technologies, the teacher and the student are equal



subjects of the pedagogical process. The basic principles of teaching are humanism, cooperation, free education. That is, in the student-teacher relationship there is mutual respect, trust, equality, partnership, democracy. The main result of personality-oriented learning technologies is the development of personality, his/her readiness and ability for self-realization, for self-education in the process of professional activity. Thus, when moving to modular training, the teacher must be fully able to realize the change in his role in the pedagogical process.

- *Professionalization of teachers in the areas of education.* The development of foreign language professional communicative competence of students is primarily based on the assimilation of professional vocabulary of a certain direction of education.

Naturally, the teacher of a foreign language must master the professional vocabulary at the beginning. The professional vocabulary of each direction of education is purely specific, which requires professionalization, specialization of foreign language teachers in the areas of education.

The integrative modules for the development of foreign language professional communicative competence of students, developed on the basis of the presented principles, will allow the training of specialists with higher education at the level of "B2" according to the requirements of the European standard for the study of a foreign language, characterized as the level of independent communication in a foreign language for carrying out activities in professional, scientific and social spheres of the multicultural world.

V. CONCLUSION

The research results are summarized in the form of the following conclusions.

1. It has been established that in the context of the development of the information society, the globalization of the world economy and related integration processes, one of the integral structure-forming component of professional competence has become a foreign language professional communicative competence of a student. This implies the implementation of teaching a foreign language using professional vocabulary, competency-based and integrative approaches, especially in the areas of education.
2. It has been substantiated that modular training is the best adapted to the peculiarities of the educational process by developing students' foreign language professional communicative competence.

The module can integrate separate parts of individual educational disciplines into a certain completed unit of educational material with an orientation towards achieving a certain competence. At the same time, the competency-based approach is effectively implemented with the use of pedagogical taxonomy, which contributes to the clarification of educational goals, ensures the reproducibility of the educational process and guaranteed achievement of the planned learning outcomes.

3. The principles of creating integrative modules for the development of foreign language professional and communicative competence of students have been developed, which include: the principle of the competency-based approach; the principle of an integrative approach; the principle of motivation; the principle of reliance on professional vocabulary; scientific principle; the principle of purposefulness; the principle of the modular-linguistic approach; the principle of the development of the student's personality qualities.
4. A methodology for the competent training of foreign language teachers has been developed for conducting classes based on the use of integrative modules. The methodology provides for the development of teachers' motivation for modular learning, their assimilation of pedagogical technology, patterns of synergetic of the principles of personality-oriented learning technologies; professionalization of teachers in the areas of education.

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MAHMUDKHODJA BEHBUDI AND THE ISSUE OF NEW UZBEK LINGUISTICS

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ABSTRACT

One of the leaders of Turkestan Jadid movement Mahmudkhodja Behbudi ran a wide range of activities. He was first to be engaged in science among new Uzbek educated men despite his career in editorial, publication and journalism. His school textbooks, scientific articles, in particular his views on linguistics were clear indication of his achievements in this sphere of science. In his articles devoted to languages Behbudi paid attention to the pressing issues of modern linguistics and he put forward his ideas worth considering in this field of science. An analysis of Behbudi's articles in this area shows that he conducted a number of studies in dialectology, sociology, and cultural anthropology.

KEY WORDS: *Behbudi, Jadidism, linguistics, literary language, dialect, cultural anthropology, reformist movement.*

I. INTRODUCTION

At the end of the 19th century and the beginning of the 20th century, the reform movement spread throughout the countries of the East and spread to Turkestan, which was under the control of the Russian Empire. This reformist movement was named differently across regions. In the Arab world it was called "An-Nahda" (Renaissance) and in the history of the Turkic peoples in the colonies of the Russian Empire it was given the name of *Jadidism*. The word *Jadid* literally means "new." Jadidism began in the Crimean Baghcharay in 1883 with opening a newmethod school by Ismail Gasprinsky.

The *Jadid* movement is one of the relatively short but very intense and complex periods in the socio-political, cultural and enlightenment history of the Turkic peoples under control of the Russian Empire. The essence of this movement has been studied and analyzed differently in various periods. The scale of *Jadidism*, the lives and works of those who initiated it and its impact on society have not yet been fully explored in researches. This, in turn, requires the study of the *Jadid* movement in its entirety.

II. LITERATURE REVIEW

The twentieth century began with some success for the peoples living in the territory of the Russian Empire. After Russia was defeated in the war against Japan, it was unable to withstand the pressure of internal and external forces. Political struggles within the Empire began to escalate, and by the end of 1905 the Emperor was forced to declare a Manifesto giving freedom to all political forces and groups. One of the main points of the manifesto was freedom of speech.

Turkestan *Jadidism* emerged much later than in other Muslim regions of the Russian Empire, in the early twentieth century. Some scholars who study Turkestan *Jadidism* point out that local *Jadids* did not have a common program until 1917. According to them, Abd al-Rauf Fitrat's (1886-1938) *Munazara* (Debate) and *Hind Sayyahi* (Indian Traveller), which changed the worldview of inhabitants of Turkestan, were considered an unofficial program of Turkestan *Jadids* until 1917. [6: 95-96] The same idea was put forward by the Japanese scholar Hisao Komatsu and he states that above two works by Fitrat were a manifesto of the *Jadid* - reformist movement in Bukhara and Turkestan. [2: 279]



These assertions and definitions are, of course, relative in determining the nature and direction of Turkestan *Jadidism*. Prior to the publication of Fitrat's *Munazara* and *Hind Sayyahi* in 1911, the activities of the Turkestan *Jadids* had reached a certain stage, they had achieved great success in spreading new schools of thought, and most importantly, had established a national press in Turkestan.

Adeeb Khalid, an American historian who has studied the foundations of Turkestan *Jadidism*, sees its emergence as a modern “response” to modernity as a result of the transformation of Central Asian society and the Russian invasion and its efforts to redistribute the world, including the Islamic world. Through the spread of *Jadid* enlightenment, Khalid sought to distinguish the Turkestan *Jadids* and their followers, who sought to create a “modern and at the same time a new elite committed to Islam and loyal to Turkestan” [1: 218] and as a result ready to defend the region’s interests in the modern world. According to Khalid, Turkestan *Jadidism* often denied the views of the Crimean and Volga-Ural Tatars and tried to find ways to adapt to the realities of the region in school work, literary language and other issues. [1:23, 181–182, 262–328]

However, it should be noted that the Turkestan *Jadids* relied more on the views and ideas of the Muslims of Inner Russia, especially the Crimean Tatar Ismail Gasprinsky, the founder of the *Jadid* movement, in resolving important issues.

According to Begali Kasimov, *Jadidism* is not a stream, but a movement. It is a social, political, enlightenment movement. Because this movement:

- 1) was able to involve all segments of society in the reform process;
- 2) carried out political activity on the way to national independence;
- 3) was able to direct education and culture, the press to socio-political goals. [7: 6]

III. ANALYSIS

In Turkestan, the so-called *Jadid* intelligentsia was formed in the first decade of the twentieth century. The basis of this group was the enlighteners of Tashkent, Samarkand, Bukhara and Kokand. Munavvarqari Abdurashidkhanov and Abdulla Avloni in Tashkent, Mahmudkhodja Behbudi and Abdulkadir Shakuri in Samarkand, Sadriiddin Ayni, Fitrat and Usmankhodja in Bukhara, Ashurali Zahiri and Mahmudjan Abidov in Kokand were at the center of this *Jadid* group.

Mahmudkhodja Behbudi was one of the people who played an important role in the formation of the *Jadid* movement in Turkestan and contributed to the spread of *Jadid* ideas in Turkestan with his thoughts and practical actions.

Behbudi first set out for the Hajj pilgrimage in 1899 and visited cities such as Istanbul and Cairo,

the capitals of the Muslim East. Adeeb Khalid noted that during the same trip, Behbudi had the opportunity to observe the reforms and innovations in the field of public education in the Ottoman Empire and Egypt, as well as to communicate with those who led the reforms in the social sphere. Eight months later, upon his return to Samarkand, he subscribed to the *Tarjuman* newspaper. [1:80]

Behbudi's work is multifaceted, and he stands out among the *Jadids* of Turkestan for his effective work in the fields of education, journalism, politics, and social issues. And, if one examines the aspects of this activity, it becomes clear that Mahmudkhodja Behbudi was the leader of the Turkestan *Jadids*. In his multifaceted work, language, especially literary language, as well as the issue of language learning occupies a special place. Of course, Behbudi, in his articles for various periodicals in any field, tried to write in a language that he considered a “literary language” for the Turkestan region. At this point, it is important to clarify Behbudi's position on the issue of a common language or literary language, as well as on the issue of “common literary language”, which was very relevant for that period.

At the end of the 19th century, more precisely, from 1883, ie from the first issue of the newspaper *Tarjuman*, Ismail Gasprinsky proposed the creation of a common literary language for the Turkic peoples, in the words of Ingeborg Baldauf, “dialect of reconciliation” [3:38]. Gasprinsky's efforts to create a “common language” for the Turkic peoples can be considered as a product of his concept of “nation” and “nationality” and the interpretation of this concept. In his numerous articles on language, Gasprinsky focuses subscribers' attention on understanding the concept of “nation” above. According to him, “a nation is a union of religion and language. If one of these two things is lost, the nation loses its identity” and faces a crisis. [9] Gasprinsky stressed that the past and future of all nations are based on religion and language. As important as the unity of religion is, the unity of language in literature is just as important and a direct means of development. [4] In order to show the great importance of language unity, Gasprinsky even raised it to the level of the beginning and foundation of all other units. [5]

From this point of view, Behbudi was the first among the Turkestans to widely promote and support the idea of linguistic unity by Gasprinsky. Behbudi also conducted a special survey and experiment on this issue in the cities of Turkestan. In this respect, we also discover Behbudi as **the first sociologist** among Turkestans. During his sociological research, Behbudi read out various newspapers to ordinary people who did not read newspapers at all and did not know the language of other Turkic peoples and thus gathered opinions on



the “language” of the newspapers read from different parts of Turkestan, and gave general conclusions. On the basis of his experience and survey Behbudi concluded that the language of Gasprinsky's *Tarjuman* newspaper, the language of the journal *Mir'at* and newspaper *Ulfat* which issued by Abd al-Rashid Ibrahimov (1875-1944) in Saint-Petersburg, were easier to understand for the population of Turkestan. And he recommended that “*all editors in Russia need to follow in the language of Mr. Ismailbek, the chairman and father of our new press, who has served our nation for a quarter of a century with his language, pen and heart.*” In this way, Behbudi, like Gasprinsky, emphasizes that the unity of Russian Muslims should be based on language unity. [18]

Continuing his thoughts on a single, universal language, Behbudi said, “... *the benefits of language unity are very well known. After all, language unity is the basis of friendship, love, mutual assistance and cohesion.*” He gave example samples from Mawlana Rumi's verses in his book *Masnaviy-i Ma'navi* on language. [10]

For Turkestan, Behbudi promotes the “middle dialect” of the Persian language, along with Turkic. The practical result of this proposal is the journal *Ayina*, published by Behbudi in Samarkand between 1913 and 1915. Baldauf sees Behbudi's initiative as an expression of solidarity with its readers. [3:40]

In Turkestan, the issue of bilingualism was raised by Behbudi in an article sent to the *Tarjuman* in 1909, long before the publication of *Ayina*. Behbudi wanted to emphasize the importance of Turkic and Persian for inhabitants of Turkestan and argued that he was in favor of the inclusion of both languages in school education. Behbudi tried to prove his point with the following arguments:

- 1) most of the urban population in Turkestan can speak Turkic and Persian fluently;
- 2) in some areas a mixed form of these two languages is used;
- 3) applications to official bodies are written in Turkic;
- 4) *shari'ah* fatwas are written in Persian and recorded in Turkic, and this method is applied throughout Turkestan.

At the end of Behbudi's article, based on his own evidence and proof, he concluded that it was appropriate to teach both Turkic and Persian in Turkestan schools. [11]

Behbudi stated that he learned the (common) Turkic language through the *Tarjuman* newspaper, he further added that “*my mother tongue is Persian, and I learned the Turkic I write from the pages of the Tarjuman which is my spiritual teacher.*” [11] This indicates that the (universal) literary or (general) Turkic language proposed by Gasprinsky was created. The attention to Gasprinsky's *Tarjuman*

newspaper in Turkestan can be seen in the fact that “schools that were reformed and opened under the name of *usul-i jaded*, taught Turkic from beginning to end under the influence of the respected *Tarjuman* and contributed to the spread of Turkic in Turkestan.” [11] These words also belong to Behbudi. According to Behbudi, the activity of Gasprinsky and the newspaper *Tarjuman* had a great influence in Turkestan. Behbudi noted that “all teachers, masters and mentors in Turkestan have learned the Turkic language with the help of the *Tarjuman*” and have been able to get acquainted with “modern new literature” and met their “cultural needs” which has been there for a quarter of a century through the *Tarjuman*. [11] When Behbudi referred to the *Common-Turkic literary language*, he meant the language proposed by Gasprinsky.

Begali Kasimov noted that the Muslims of the empire, in particular, were in the same circle as Behbudi and Gasprinsky in the struggle for the accession of Turkestan to the ranks of a developed nation and ultimately for independence. This was the “compromise path” proposed by Gasprinsky, which sought to achieve enlightenment through the achievements of the Russians and their culture, and, most importantly, not to lose national identity in this way. [8:42] The views of Behbudi on learning Russian language and promotion of Russian culture can be found in many of his articles. [15] In particular, in his article *We Need Four Languages, Not Two* [12], published in the first issue of *Ayina* journal, he states that people of Turkestan need to be fluent in all the four languages of Turkic, Persian, Arabic and Russian in order to keep pace with the times and enjoy modern knowledge and ideas. It was emphasized that they should reach the level of fluency. In this article, when Behbudi referred to the *Turkic*, he meant *Uzbek* language which was spoken by the majority of the local population. According to him, the reasons for learning these four languages were:

- 1) *Turkic* or *Uzbek* – the language spoken by the majority of the people of Turkestan;
- 2) *Persian* is the language of madrasa and writers. To this day, Persian poetry and prose books have been taught in old and new schools all over Turkestan;
- 3) *Arabic* – all Shari'a books taught in madrassas are in this language;
- and 4) *Russian* – to study modern science, which is useful for “*modern commercial work, industrial and national affairs, and even the religion of Islam and the service of the nation.*”

Behbudi pointed out the factors that lead to the study of the language, emphasizing that it is “a blessing for us” that either Turkic or Persian was the mother tongue for the local people, and that every Turkic people inhabiting in the region knew these languages well “without education”. He further noted



that “Those who know these languages fluently can enjoy the works of Firdavsi, Bedil, Sa’di, Masnavi written in Persian, as well as the works of Fuzuli, Navoi, Baqi, Sami, Abd al-Haq Hamid, Akrambek, Sanayi, Nabi, Naji written in Turkic, and translations of works by Tolstoy, Jules Verne and other modern authors in Turkic”.

Why did Behbudi want inhabitants of Turkestan to focus on learning Russian? According to him, in order for the nation not to be completely annihilated by other nations, they must act side by side, along with other developed nations, both commercially, industrially and politically. There was no one among the people of Turkestan who was able to speak in Western languages, including Russian, from the rostrum, even for the benefit of the nation and the homeland. In order to eliminate these shortcomings, it was necessary to learn the Russian language, study at Russian universities and be aware of all the laws. Behbudi raised the issue of language learning as a political issue and wrote that it would pave the way for the formation of intellectuals capable of serving for the interests of the Motherland.

Behbudi also raised the same issue in his review for Abd al-Rauf Fitrat's *Munazara* on how it was important to learn Russian for peoples of Turkestan. [15] Behbudi also cited a hadith (narrative) that even the Prophet (peace and blessings of Allah be upon him) commanded people to learn foreign languages, which was the main proof that the people who were to learn this language would not become “kafir.” [12]

Behbudi's views on literary language were reflected in his article published in 1915, *Til Masalasi* (The Problem of Language). This article consisted of two parts, in the first part Behbudi discussed the dialects of the Turkic language. According to him, the sub-types and dialects of the Turkic language, which were widespread in Turkestan, were influenced by Persian culture and literature for hundreds of years, during these years so many words were borrowed from Persian, and the original Turkic words were forgotten and were out of use during this time. Also, since the 14th century, countless words have entered the dialects of the Turkic language from Arabic, which is the language of sacred religion of Islam and the language of the Qur'an, and it is impossible to exclude them from the dialects. Because there is no alternative to such words.

Behbudi said that the language of the Turkic peoples living in different regions was influenced by Persian and Arabic to the same extent as the language of the people of Turkestan, some of which even took Persian and Arabic so much that their languages were combined with Turkish, Persian and Arabic and this language was called “Ottoman language”. Speaking of the Ottoman language, Behbudi emphasized that in order to write and read fluently in this language, one

must be “familiar with the literature and rules of the three languages”, otherwise “most of the works written in Ottoman dialect” would be incomprehensible not only to the “people with basic literacy”, but also for some intellectuals.

As Behbudi wrote about language dialects in Turkestan, he presents himself as a *mature linguist*. Behbudi studied the extent to which the dialects of the languages of peoples of Turkestan were influenced by Persian and Arabic, depending on the region in which they lived, and the process was “*not of the same everywhere, but of different varieties depending on geography*”. And no matter how much the Turkic language has changed under the influence of other language, he concluded that “*everyone who spoke a dialect of a Turkic language could understand each other*”. This shows that Behbudi also *had a deep knowledge of dialectology*.

Speaking about the language of books, in other words, literary language which is widespread in Turkestan, Behbudi said, “*In Turkestan, Bukhara and Khiva, even if everyone writes according to their own dialect, they are near (close) to each other*”, in other words, “*the educated*” or the intellectuals share literary language and have “*language unity*”. [14]

The second part of the article *Til Masalasi* was devoted to the issue of creating a single, simplified literary language for the Turkic peoples. Behbudi said he had tried to take a “neutral” approach to the issue. Behbudi began by analyzing the path traversed by the Volga Tatars, the peoples of the Caucasus, to show the difference between dialect and “literary language”. According to him, the “language” of the press published by Tatars and Azerbaijanis is “much higher” than the “street language”, which is known to every intellectual who reads the newspaper. Even the language of the newspaper *Waqt* and the journal *Shura* from the year of their publication, “*if the past issues are to be compared to the present ones, the current ones seem to be more formal*” which means the language was in constant “*progress*”. Indeed, Behbudi's conclusion about the language of the Tatar and Azerbaijani press shows that he did some research, studies, observations and analysis in this area. And this, in turn, proves once again that Behbudi was a *mature linguist* who, in addition to constantly monitoring the Turkic language press, had been able to draw definite conclusions by analyzing how their language policy was changing.

As mentioned above, Behbudi conducted a sociological survey to reach such a conclusion, and the results of his research to determine which language of the press was understandable to the average person from Turkestan are reflected in the second part of the article *Til Masalasi*. Indeed, Behbudi's researches and studies should be viewed in terms of expressing his views on the creation or adoption of (common) literary language, which was



one of the most important issues at the time as he had his own position.

Although Behbudi supported the idea of simplifying the language in the matter of general literary language and bringing it into a form that is understandable to the public, he considered the issue of purifying the language, that is, finding alternatives to Arabic and Persian words and applying them to the language, to be *“impossible to put into practice, nothing more than a hollow dream”*. At the same time, Behbudi touched upon the issue of the use of new words from other languages in newspapers and magazines in any form, and as he explained the reason behind this issue, he stated that *“It is due to the lack of organizations and people who can invent Turkic new names for the things which have been made or invented and called in foreign languages in the age of science and crafts development”*. Here, Behbudi brought the need to establish a scientific society which should have organized borrowings to the agenda.

Analyzing the articles in the newspaper *Sada-yi Turkistan* on the issue of language purification, Behbudi called this act of the newspaper as an *“impossible dream to implement”*. The reason is that if we try hard to purify the Turkic language, which has been under the influence of Arabic and Persian for centuries, to *“get rid of the borrowings from these languages, then we will have to spend some more thousand years, an eventually once the effort has come to an end, new words from more advanced nations' languages start to penetrate into our mother tongue”*. Behbudi had taken such a position on the issue of language purification.

As Behbudi was concerned about simplifying the language, he suggests that plural forms should be written in Turkic form while using arabic words, for example, while writing the words such as, *“ulum, funun, ulamo, quzzot and ..., the forms should be changed into fanlar (ologies), ilmlar (sciences), olimlar (scientists/scholars), qozilar (kadis/religious judges) instead”*, and he further suggested that complex sentences used in the press such as *“kurrai azrda yashamakda bo'lgan har millatning o'ziga maxsus bir lisoni milliysi vordur (all the nations living in the spheric land do have their special language - means of national communication)”* should be simplified as much as possible in Turkic. However, as mentioned above, Behbudi was firm when he stated *“to think of alternative Turkic names for all scientific and religious terms and phrases is nothing more than exhausting oneself and wasting the press”*.

Behbudi believes that a simple language was necessary to *“talk to the people around”*, while literary and scientific language was necessary to *“know and use existing science and history”*. In his view, given that a simple language which is a dialect, would vary by region, thus, this language could not

be considered literary, and there was no point in using it as a literary language either. In addition, Behbudi considered Turkestan dialects to be *“incapable”* of being a literary language. The reason for Behbudi's conclusion was that in order for *“scientific and literary, it should be used by the mothers of every village and street”*, just as the mothers of other developed nations who are educated *“from birth to birth”*. Therefore, Behbudi concluded that *“since we need science and knowledge, some branches and dialects of the Turkic language have all kinds of modern, scientific, religious, historical books, we should try to read and understand them”*.

As mentioned above, the main reason for Behbudi's sociological survey and research on which newspaper language the common people of Turkestan understood and accepted was to raise the language of the newspapers *Tarjuman* or *Ulfat* to the level of (common) literary language. Behbudi explained his view as follows: *“In order to be aware of science of the world, one must know one of the languages of Russian, German, French, English, Italian, Arabic or Japanese, and if one does not know any of them, s/he should be familiar with Caucasian or Crimean dialect literature to be aware of the world.”*

IV. DISCUSSIONS

Behbudi's views on literary language caused great opposition in his time. One of his closest allies, Haji Muin, had opposed his views on literary language. Hajji Muin advocated the purification of the local language and its formation as a literary language by purifying it from foreign (Arabic and Persian) words. [19] Moreover, the duality proposed by Behbudi, that is, the idea of using Persian as well as Turkic in the whole of Turkestan, was not supported by Haji Muin. Ingeborg Baldauf points out that Haji Muin was only partially able to put his ideas into practice when Behbudi was on a trip when he was appointed as a temporary editor of magazine *Ayina*. According to Baldauf, Haji Muin managed to turn the bilingual magazine *Ayina* into a purely Turkic-language magazine in a short period of time. [3:44]

At the end of Behbudi's article *Til Masalasi* he emphasized that no language can develop only with its own vocabulary, but can be developed by adopting new words from other languages, instead of wasting time refining the language by noting *“let's get ready for the future, not for the past”*. He also pointed out that it was not expedient to write literary works in these dialects, as there were differences between the dialects of different regions of Turkestan. Behbudi saw the illiteracy of mothers as the main problem and obstacle to the creation of a (common) literary language. In order to create a literary language, according to Behbudi, first of all, *“we must first teach our mother and teach her the*



language". Behbudi stressed that the development of literary language and science depends on the knowledge of the mothers of the nation. On the one hand, he raised the issue of letting more girls to schools and making them literate, and on the other hand, using as few Arabic and Persian words as possible to create a literary language. He suggested writing simply with extensive exception of other Turkic languages. [14]

Among the articles published by Mahmudkhoja Behbudi on linguistics, his views on the word *sart* are of great importance from the point of view of modern linguistics. An analysis of these articles reveals that Behbudi was one of the first of his contemporaries to deal with the etymology of the word, to conduct research, and, in modern parlance, to speak *as a cultural anthropologist*.

In the article *Sart So'zi Majhuldir* (The word Sart is abstract) published in the magazine *Shura* [16], Behbudi used the word *sart*, which was introduced by the Russians to the local population, whether it existed in various dictionaries, how the surrounding nomadic peoples used the word, etc. he cited 24 uses of the word, and finally proved that the word *sart* is inappropriate to be used as a common name for the indigenous people of Turkestan. While Behbudi analyzed his arguments for the word *sart* in this article, the author tried to explain it through various dictionaries, from the facts in historical books, to its meaning in the speech of nomadic peoples. This, in turn, shows that a great deal of research was done on the etymology of the word *sart* and Behbudi's ability in this regard.

After Behbudi cited all the evidences, in the end of the article he further noted that even the etymology of the word *sart* was abstract, and as the term *sart* was used to refer to sedentary people of Turkestan by nomadic Kazaks, he advised Russians to console with them to get some concrete answer on how to use the word properly.

The first article on the word *sart* in the *Ayina* was titled *Sart So'zi Majhuldir* (The word Sart is abstract) [13], the same as the article published in magazine *Shura*, and the second was published under the headline *Sart So'zi Ma'lum Bo'lmadi* (Origin of Word *Sart* Unknown)" [17]. In these articles, Behbudi analyzed the articles published by him and other authors in the magazine *Shura* on how to use the word correctly. Summarizing the views of all the authors, Behbudi wrote that the use of the term *sart* in reference to the settled population of Turkestan was an "insult".

As proof of his point, Behbudi states that there were once upon a time *Huns* who conquered the whole Europe and they stayed in there for many more centuries to come before disappeared as a result of their mix with the local population, and he ask the question of whether it was appropriate to call Europeans as *Huns* or it was a kind of insult. As

Behbudi concludes his opinions, he stated that peoples in Europe take it as an insult when called *Huns*, he further mentioned that there was once upon a time a tribe called *sart* in the lands of Turkestan according to some history books, but referring to people as *sart* seems as an insult, he equated it to demean the nation.

V.CONCLUSION

Indeed, the ideas and works he wrote are of great importance in assessing the role of Behbudi in the Jadidism of Turkestan, his role in the spread of these movements, ideas and thoughts, his activities in the implementation of reforms in various spheres of socio-political life. In this sense, his views on (common) literary language, language norms, spelling, etymology of words, in a sense, allow us to make a certain assessment of Behbudi's work in the field of linguistics, to give an objective assessment of his actions in this direction.

Behbudi's excellent knowledge of the dialects of the Turkic language prevalent in Turkestan, his ability to periodize, evaluate and analyze the language of the periodicals published in the relatively advanced Turkic dialects of his time, proves that he was the first linguist among Turkestan intellectuals. Also, taking into account his research on their origin, the history of words we are given grounds to conclude that Behbudi was a scholar who was also the first to conduct research in the field of cultural anthropology in modern terms. In short, Behbudi is a linguist, sociologist, dialectologist, ethnographer, cultural anthropologist who worked effectively on the formation of the Uzbek language as a literary language.

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A STUDY ON THERMODYNAMIC PROPERTIES FOR THE BINARY MIXTURE OF PYRIDINE AND 1-HEXANOL AT 315.15 K

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ABSTRACT

*Density, viscosity of binary liquid mixture composed of Pyridine and 1-Hexanol were determined at 315.15 K. From the experimental results obtained, deviation in viscosity ($\Delta\eta$), excess molar volume (VE), excess Gibbs free energy of activation of viscous flow (ΔG^*E), were determined and other parameters were used to quantitatively analyze the interactions in the system. The decreasing trend of η with concentrations and other parameters are in increasing trend were observed. The magnitude of intermolecular interactions among the constituents of the mixtures always reflects the nature of substance. The sign and magnitude of these properties are evident for the nature of interactions between component molecules.*

KEYWORDS: *Binary mixtures, Density, Excess molar volume, Interactions, Viscosity.*

1. INTRODUCTION

The mixing of different solvents results in the formation of a solution that is different from ideal [1]. The thermodynamic properties of multi component liquid mixtures and their analysis in terms of interpretative models constitute a very interesting subject [2]. The practical need for thermodynamic data for teaching and research as well as for design and set up of industrial processes continue to drive research in the study of multi component systems. The characterization of mixtures through their thermodynamic and transport properties is important from the fundamental view point of understand their mixing behavior [3-8]. A thorough knowledge of transport properties of non-aqueous solutions is essential in many chemical and industrial applications [9].

The studies of excess properties such as deviation in viscosity, excess molar volume, excess Gibbs free energy of activation of viscous flow and Grunberg-Nissan interaction constant of binary mixtures are useful in understanding the nature of

intermolecular interactions between two liquids [10-13]. Properties such as density and viscosity at several temperatures both for pure chemicals and their binary liquid mixtures over the whole composition range are useful for understanding of the thermodynamic and transport properties associated with heat and fluid flow [14]. Binary liquid mixtures due to their unusual behavior have attracted considerable attention due to their importance from both theoretical and practical point of view because these mixtures are used in titration, calorimetry and reaction calorimetry among other uses [15]. Alcohols serve as simple examples of biological and industrially important amphiphilic materials that exist in the liquid state which may be due to hydrogen bonding of their O-H group. They are polar and self-associated liquids. The dipolar association of alcohols decreases when they are mixed with aromatic hydrocarbons due to some specific intermolecular interactions between the alcohol and an aromatic hydrocarbon [16]. Primary alcohols have both a proton donor and a proton acceptor group. It is expected that there will be a significant degree of H-



bonding leading to self-association in the pure state in addition to mutual association in their binaries [17].

In this study, experimental viscosity and density are reported at 315.15 K for binary mixture of Pyridine and 1-Hexanol. Deviation in viscosity ($\Delta\eta$), excess molar volume (V^E) and excess Gibbs free energy of activation of viscous flow (ΔG^{*E}) have been calculated from the density (ρ), and viscosity (η), data. Modified Kendall-Monroe equation with no parameters has been used in correlating viscosity data of the binary mixture. Calculated deviation in viscosity and excess functions were fitted to the equation and the results analyzed in terms of molecular interactions.

2. EXPERIMENTAL

2.1. Materials

Chemicals which were purchased from S.D Fine chemicals, Mumbai, India, with on purity of 99.7 % were used as such without further purification.

2.2. Mixture preparation

Binary mixture is prepared by weighing appropriate amounts of Pyridine and 1-Hexanol on an electronic balance. An CY 304 Gravity Balance, Asia Technoweigh, India with a maximum capacity of 300 g. 100 ml of solutions of mixture is prepared 0.1 in steps of 0.01 M concentrations and weighing of samples through GR -202r, setup which are kept in air tight bottles to avoid evaporation and etc. The dialysis of the sample solution is measured by using specific gravity bottles having bulk capacity of 10 cm³. The graduates mark, and will be glassed by well-fitting

glass cap. The uncertainties in density measurements were within $\pm 0.1 \text{ Kg m}^{-3}$.

2.3 Density measurement

Densities of pure liquids and their mixture have been determined by using a 5 cm³ two-stem double-walled Parker & Parker type pycnometer. This pycnometer is calibrated with triply distilled water. The pycnometer filled with air bubble free experimental liquids was kept in a transparent walled constant temperature bath for 20 to 30 min to attain thermal equilibrium. The positions of the liquid levels in the two arms are recorded with the help of traveling microscope. At least three to four measurements are performed, from which an average value of density of the experimental liquid is determined. The estimated accuracy in the density measurement is ± 3 in 105 parts.

2.4 Viscosity measurement

The viscosity measurement is done through the Oswald's viscometer. The time of flow noted (3-trials) with a digital stop watch and the precision intensity measurements is within the $\pm 0.001 \text{ mNsm}^{-2}$. The temperature of the sample is maintained constant to an accuracy of $\pm 0.1\text{K}$ using a thermostatically controlled digital water bath.

3. RESULTS AND DISCUSSION

A comparison of experimentally determined values of density (ρ), and viscosity (η) measured for both pure liquid at 315.15 K, with literature values are presented in table 1.

Table 1. Comparison of experimental densities (ρ) and viscosities (η) with literature values

Component	$\rho \text{ (g/cm}^3\text{)}$	$\eta \text{ (mPa.s)}$
1- Hexanol (Exp.)	0.7972	1.6280
(Theo.)	0.7958	1.6324
Pyridine (Exp.)	0.9592	1.1202
(Theo.)	0.9568	1.1236

Table 2. Experimental values of density $\rho \text{ (g/cm}^3\text{)}$, viscosity $\eta \text{ (mPa.s)}$, deviation in viscosity $\Delta\eta \text{ (mPa.s)}$, excess molar volumes $V^E \text{ (cm}^3\text{/mol)}$, molar volume of mixture $V_m \text{ (cm}^3\text{/mol)}$, excess Gibbs free energy of

activation of viscous flow $\Delta G^{*E} \text{ (J/mol)}$, Grunberg-Nissan parameter (d') and modified Kendall and Monroe viscosity correlation $E \eta_m \text{ (mPa.s)}$ with Pyridine (x_1) at 315.15 K.



x_1	ρ (g/cm ³)	η (mPa.s)	$\Delta\eta$ (mPa.s)	V^E (cm ³ /mol)	V_m (cm ³ /mol)	ΔG^{*E} (J/mol)	d'	$E \eta_m$ (mPa.s)
0.0000	0.9856	0.9025	0.0000	0.0000	86.2031	0.0000	0.0000	0.0000
0.9005	0.9354	0.9326	-0.0458	0.4524	88.2547	887.0215	-5.0254	0.2458
0.8005	0.9145	0.9524	-0.0854	0.9584	88.7458	1847.2451	-3.5243	0.3562
0.7002	0.9028	0.9658	-0.1248	1.3254	89.0254	1754.2154	-2.1214	0.4540
0.6003	0.8857	0.9754	-0.1423	-0.4587	89.8547	1620.0215	-1.5879	0.4958
0.5001	0.8787	0.9847	-0.1582	-0.9856	90.1205	1884.2145	-0.8546	0.4425
0.4024	0.8689	1.1024	-0.1652	-1.3225	90.8540	1325.2541	0.4587	0.3201
0.2995	0.8458	1.2588	-0.1785	-1.4586	91.4587	1123.3201	1.0552	0.2654
0.2021	0.8354	1.4258	-0.1856	-1.6589	93.2547	987.2879	2.6589	0.1758
0.1016	0.8116	1.5876	-0.1952	-1.8542	92.3450	758.5895	4.2158	0.0856
0.0000	0.7972	1.6280	0.0000	0.0000	94.2528	0.0000	0.0000	0.0000

Experimental density (ρ), dynamic viscosity (η), at temperatures of (315.15 K) are presented in table 2. The table also lists deviation in viscosity, $\Delta\eta$, excess molar volume, V^E and excess Gibbs free energy of activation of viscous flow ΔG^{*E} , for (Pyridine + 1-Hexanol) as a function of mole fraction.

To investigate the molecular interaction between Pyridine and 1-Hexanol, viscosity deviation, $\Delta\eta$, excess molar volumes, V^E and excess Gibbs free energy of activation of viscous flow, ΔG^{*E} , have been evaluated from experimental density and viscosity using equations 1 and 2 respectively.

$$V^E = \frac{x_1 M_1 + x_2 M_2}{\rho_m} - \left(\frac{x_1 M_1}{\rho_1} + \frac{x_2 M_2}{\rho_2} \right) \quad \dots\dots\dots(1)$$

$$\Delta\eta = \eta_m - (x_1 \eta_1 + x_2 \eta_2) \quad \dots\dots\dots(2)$$

Where x_1 and x_2 are the mole fractions calculated from mass fractions. M_1 and M_2 are molar masses, ρ_1 and ρ_2 are densities, η_1 and η_2 are the viscosities of pure components 1 and 2 respectively. ρ_m and η_m are the density and viscosity of the mixture.

The excess Gibbs free energy of activation of viscous flow was obtained from equation 3.

$$\Delta G^{*E} = RT [\ln \eta_m V_m - (x_1 \ln \eta_1 V_1 + x_2 \ln \eta_2 V_2)] \quad \dots\dots\dots(3)$$

$$V_m = \frac{x_1 M_1 + x_2 M_2}{\rho_m} \quad \dots\dots\dots(4)$$

Where R is the universal constant of gases, T is the absolute temperature, V_1 and V_2 are the molar volumes of component 1 and 2, x_1 and x_2 represents the mole fraction of component 1 and 2. V_m is obtained from equation 4 below. η_1 , η_2 and η_m are the viscosity of component 1 and 2 and mixture respectively.

Kendall and Monroe [18] derived equation, 5 for analyzing the viscosity of binary mixtures based on zero adjustable parameter.

$$\eta_m = (x_1 \eta_1^{1/3} + x_2 \eta_2^{1/3})^3 \quad \dots\dots\dots(5)$$

$$E \eta_m = x_1 x_2 (x_1 \eta_1^{1/3} + x_2 \eta_2^{1/3})^3 \quad \dots\dots\dots(6)$$

Where $E \eta_m$ is a modified Kendall-Monroe equation, 6.

The predictive ability of some selected viscosity models such as the one parameter model of Frenkel [19] equation 7 and Hind [20] equation 8, apply to the studied binary mixtures.

$$\ln \eta = x_1^2 \ln \eta_1 + x_2^2 \ln \eta_2 + 2 x_1 x_2 \ln \eta_{12} \quad \dots\dots\dots(7)$$

$$\eta = x_1^2 \eta_1 + x_2^2 \eta_2 + 2 x_1 x_2 \eta_{12} \quad \dots\dots\dots(8)$$



Where η_{12} is a constant attributed to unlike pair interactions. Its value is obtained from equation, 9.

$$\eta_{12} = 0.5 \eta_1 + 0.5 \eta_2 \quad \dots\dots\dots(9)$$

Grunberg and Nissan [21] formulated equation 10 to determine the molecular interactions leading to viscosity changes with one parameter to estimate the dynamic viscosity of binary liquid mixtures.

$$\ln \eta_m = x_1 \ln \eta_1 + x_2 \ln \eta_2 + x_1 x_2 d' \quad \dots\dots\dots(10)$$

where d' is an interaction parameter which is a function of the composition and temperature of binary liquid mixture.

A comparison of experimental thermodynamic data of Binary mixture with that calculated by means of various predictive methods is very useful from different points of view: (i) it suggests which model is more appropriate to the characteristics of the system, (ii) it may indicate which parameters should be improved when the model involves group contributions and (iii) it may allow the identification of some model as a convenient reference for the interpretation of the deviations observed. The viscosity data have been correlated with semi-empirical equations of modified Kendall and Monroe, Frenkel, Hind, and Grunberg-Nissan. The values of the Grunberg and Nissan constant (d') and modified Kendall-Monroe ($E\eta_m$) for all systems under study are presented in table 2. Grunberg-Nissan interaction parameters are both positive and negative while the modified Kendall-Monroe viscosity correlation data are all positive. Positive and negative Grunberg-Nissan parameters indicate the presence of both strong and weak interactions between unlike molecules.

4. CONCLUSION

The deviation in viscosity, excess molar volume and excess Gibbs free energy of activation of viscous flow for the Binary liquid system of Pyridine + 1- Hexanol at 315.15 K has been reported. There is intermolecular interaction. The components of the binary mixture leading to possible hydrogen bond formation of the type $N \cdots H-O$ between unlike molecules confirming hydrogen bonding formation between Pyridine and 1-Hexanol binary liquid mixture.

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SEED GERMINABILITY AND GRASS BIOLOGY OF MEDICINAL PLANT SALVIA (*SALVIA OFFICINALIS* L.)

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ABSTRACT

The article presents the data on seed germination of *Salvia officinalis* L. in laboratory and field conditions. The mass of 1000 seeds of the plant is 7-8g. It has been revealed that the optimal sowing time for *S. officinalis* L. is the spring period. At the same time, laboratory and soil germination of freshly harvested seeds of *S. officinalis* L. constitutes 70-85%. Plant seeds sprout 15-20 days after sowing. Plant safety in the conditions of Tashkent oasis in the aisles is 70-80%. In the first year of life, plants do not enter the generative phase of development. In recent time, a collection of this plant has been created and methods of mass reproduction, as well as agricultural measures, are being studied.

KEYWORDS: *Salvia officinalis* L., field, generative, reproduction, seeds, biology, raw material.

INTRODUCTION

Today, the naturalization of medicinal materials used in the pharmaceutical industry is one of the most crucial issues. In this regard, a number of works are being carried out by scientists in our country. At present, more than 30 medicinal plants are grown to meet the needs of pharmaceutical companies for medicinal plant raw materials. However, *Salvia officinalis* L. is relatively rare among the cultivated medicinal plants.

Salvia – is a plant belonging to the family of Lamiaceae. There are 500 species of this genus in the world and 16 species in Uzbekistan. In ethnoscience and modern medicine, this plant is widely used as a healing plant. This is because in the foreign

pharmaceutical and perfumery industry, the production of various medicine from its topsoil raw materials has been established [2].

“The Action Strategy” of the Republic of Uzbekistan for 2017-2021 sets a number of tasks in this field. It is important to select medicinal and food plants, taking into account their biological properties, to develop and implement the technology for their cultivation [6].

For this purpose, a collection of this plant has been created on the experimental plot of Tashkent State Agrarian University, and the bioecological features of the plant are being studied in detail.

The purpose of the research work: Study of seed germinability of *S. officinalis* L. medicinal plant in laboratory and field conditions.



Tasks of the research work: To determine seed germination in laboratory and field conditions. To study generative reproduction methods and bioecological features.

MATERIALS AND METHODS

The medicinal plant *S. officinalis* belongs to the family Lamiaceae. There are 500 species of this genus in the world and 16 species in Uzbekistan. The species of *Salvia* grow on mountain cliffs, from the slopes to the middle of the mountains, in the hills, gardens and fields. *Salvia* is a perennial herb, it reaches 50-100 cm. Stem has erect shape, hairy, quadrangular. The leaves are ovoid, heart-shaped, serrated, are arranged oppositely along the square stems. The foliage on anterior roots and below the stem are elongated in the petiole, while the foliage at the top of the stem are without petiole. The flowers are pink and purple in colour, short-stemmed. The flowers are usually tubular with two lips and only two stamens and are borne in terminal inflorescences. They produce four nutlet fruits. [5]. The seed of this plant is the object of the study.

The methods of research: Field experiments were conducted by specialists and researchers of the Botanical Garden of the Academy of Sciences of Uzbekistan,

Uzpharmsanoat SJSC in 2015 on the basis of guidelines. In determining the viability of the seeds under laboratory conditions, they were sown in a Petri dish on 4 replications and tested and determined on a percentage. In the field, seeds soaked in the ash solution for 1 day were sown in 5 rows of by 100 seeds and calculated as a percentage [1, 4].

RESULTS AND DISCUSSION

Seed germinability. It is known that the germination of seeds is a key indicator in the formation of plant crop areas. In this purpose, our scientific research has studied methods of propagation from plant seeds.

The fruit of the medicinal plant *Salvia* consists of 4 nuts. The seeds are 2,2–3 mm long, with a smooth surface, in dark brown colour. The weight of 1000 seeds makes 7-8 g.

To study seed germination under laboratory conditions, bibulous paper was laid on a Petri dish and seeds were sown in it (100 pcs.), germination was fully observed after 16–20 days and lasted 35–40 days.

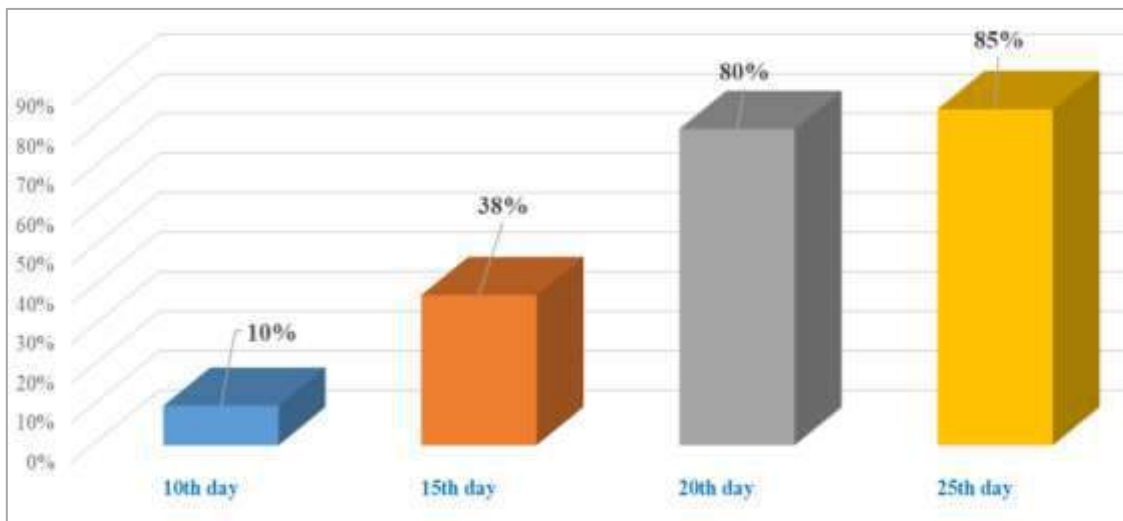


Fig. 2. Seeds germination in laboratory condition

Experiments have shown that the germination of seeds of *salvia* is satisfactory, averaging 80-85% under laboratory conditions (18-20°C) (Fig. 1).

In order to determine the optimal sowing time of plant seeds in field conditions, experiments were conducted during the sowing seasons (spring and

autumn), taking into account seed germination under laboratory conditions. To obtain accurate data, the seeds were tested by sowing in March-April and November-December months of the year.



Table 1
Relations of seed germination with sowing time

Sowing period	Sowing time, (month)	Sowing sates	Germination, %
Spring	March	01.03.15	85
		15.03.15	83
	April	01.04.15	80
		15.04.15	73
Autumn	October	01.10.15	70
		15.10.15	73
	November	01.11.15	73
		15.11.15	81

According to experiments, seed germination was recorded at around 75-80% in all sown variants. However, in early spring seed germination rate was higher in the seeds sown in the first days of March, which were reported to be relatively higher (80–85%) than the germination rates observed under laboratory conditions.

For propagating from seeds, medicinal salvia plant seeds were sown at a depth of 2–3 cm, making rows of 60–70 cm intervals in late March when the soil temperature was 12–15°C above 0. Consumption of 7-8 kg of seeds of one class gave effective results per ha.

Grass biology. The sown seeds germinated in 15-22 days and the seeds were observed to form leaves. The main root was 3,5-4 mm long and the total length of the grass was noted to be around 1-1,5 cm. On the 10–12th days of observation, the length of the grass seed leaves was 2–4 mm. It has been observed that since the grass period they have been covered with hairs. The main arrow root of the grass reached 1–2 cm, and the lateral first-order side roots were 0,2–0,4 mm. At this time it was observed that the total length of the plant reached 1,0-1,2 cm. When the appearance of the first true leaves was observed on the 12-15th days of development, the upper part of the leaf blade was covered with small hairs. True leaf shape became elongated, 0,5 mm wide and 0,8 mm long. At this time it was found that the main root reached 4,5–5 cm, the lateral roots reached 0,8–1 cm. The grasses grew slowly and their total length made 3-3,8 cm. In spring, as a result of rainfall, the formation cracked soil is observed in the areas planted with medicinal salvia plants. To remove the cracked formation and clods, inter-rows of plant were softened, mulched with wood chips and rotten manure, and at the same time thinned, leaving 2-3 plants every 20 cm.

Observations showed that in the first growing year, the length of the main stem of the plant reached 20-28 cm, the number of leaves reached 10-16. The woodiness of the lower part of the main stem was 3-5 cm and the number of leaves shed from this place averaged 4-6 pcs.

In the first growing year, the number of first-order branches reached 8-10 pcs, with a length of 15-17 cm, and the number of leaves made 15-18 pcs. The leaf blade was 8–10 cm long, 2–2,8 cm wide, and the length of petiole was 5–6,1 cm.

CONCLUSION

Thus, scientific studies have shown that the medicinal salvia plant grows sufficiently in irrigated soils with high fertility and moderate mechanical content. Sowing the seeds of the plant in autumn and early spring gives effective results. No generative period was recorded in the first year of development when propagated from seed. It was noted that the preservation of grass seedlings grown at the end of the growing season is high, 70-80%. At present, the necessary agro-technical measures for this plant are being carried out on the experimental plots and various methods of propagation are being studied.

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TRIPARTITE RELATION BETWEEN CHINA-TIBET-INDIA AND INDIA'S RESPONSE TO TIBETAN QUESTION

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ABSTRACT

Tibet is situated geo-strategically as buffer state between China and India and is critical to India's security. Tibet was ruled by theocratic head of states like Dalai Lama which served socio-political culture of Tibet before 1949. Mao's military intervention led to the occupation of Tibet. The hostility between India and China emerged after Dalai Lama and his followers fled to India and were given asylum here. In 1959 there was suppression by Chinese PLA to quell down the Tibetan uprising militarily and control over its territory has increased tension between two countries. India has recognised the Tibet as autonomous region of PRC while contrary China should also recognise Sikkim, Arunachal Pradesh and Jammu & Kashmir as states of Indian union on reciprocal basis. India has urged Dalai Lama on earlier stances to seek peaceful settlement with Beijing and which will enhance the Tibet autonomy. Dalai Lama visited India during 1956 and stayed here permanently while Nehru urged to return back to Tibet and work on the basis of Seventeen point programme. The political and monastic elites of Tibet's has tried to squeeze out the concession from China by exploiting the popular discontent from there. India's security interest and concerns primarily lies in the eliminating and reducing the Chinese military presence in the Tibet. China has relationship with India and ask for endorsing the "one china policy" with regard to Tibet. India needs to re-evaluate and re-look at the Tibetan policy from the prism of national security and its religious tolerance to Tibet. There has been linkages of Buddhist philosophy between Tibet and India and acknowledges its threads to India. This Buddhist philosophy worked as Guru-Patron or Choe-yon relationship between India and Tibet. The Tibetan refugee settlement, Buddhist monasteries and educational institutions as these institution playing crucial role to maintaining traditional culture and identity of Tibet.

KEY WORDS: *occupation, reciprocal, endorsing, acknowledges, re-evaluate.*

INTRODUCTION

There has been close connectivity between India and Tibet in terms of historical, cultural and religious linkages over past two millennium. There is triangular relationship between China-India and Tibet enmeshed with stalemated relationship with border disputes. Tibet served as a vassal state and protectorate for the Qing Empire till 1912 which caused the basis for territorial claim of China over Tibet. Tibetans are quite thankful to religious and culturally, generous and magnanimous to hospitality provided by Indians in age of realism. The Tibetan studies revolves around the anthropological studies of

art, culture, Buddhism, religion and Language of Tibetan peoples. India by providing Tibetan refugees in exile home has played the role of Tibetan cause for freedom. This is considered as an act of courage and conviction by allowing to accepting compassionately Tibetan refugees shelter in India who are escaping Chinese occupation and oppressive regimes there. Thus Dharamsala is looked as a little Lhasa. (Dharan: 2003) Thus Tibetan Government in exile has served as the vital interest for India and has enjoyed the hospitality offered by India since 1959. India host the TGIE Tibetan government in exile and Dalai Lama.



TIBETANS REFUGEES AND DIASPORA AND LIVING IN EXILE

The paper in this segment focusses on notion of Tibetans living in exile for more than fifty years. Many peoples are displaced because of wars, economic instability and genocide. After Chinese occupation of Tibet and subsequently Flight of Dalai Lama in India there has been more than 1 Lakhs registered refugees in India. The Government in exile functions in Dharamsala after 1960s headed by Dalai Lama. They are lauded for preserving successfully their culture and identity in exile. The Tibetan refugees feel that India is their second home. The Tibet has been exploited for its natural resources. The Tibetans Lamaist Buddhists are widespread to parts like Sikkim, Ladakh, Nepal, Bhutan, Mongolia, and Russia (Buryat Mongolia, Tannu, Tuva and Kalmykia). There has always been nostalgia for the Tibet they dwell and stayed. Tibetans expressed the sense of gratitude for India being generous host though it is another home which portrayed on their mental map. (Tarodi: 2011:17)

INDIA, CHINA, TIBET AFFAIRS AND INDIAN PERSPECTIVE FROM SECURITY PRISM

Tibet acts as a buffer state to India and China has been huge cause of concern due to heavy militarization and by Chinese administration. India has been considered as greatest centre of learning. Tibet is geopolitically and strategically situated in the far flung from west side of Xinjiang region. Tibet remained a long inconclusive and protracted, undetermined type of conflict which has made it flash point between Sino-India as Taiwan is potential flashpoint of conflict between United States and South China Sea. By systematically destroying the buffer status of Tibet China has pushed India to permanent state of strategic disadvantage. Indian leader BR Ambedkar has quoted that allowing China to hold its position and occupation over Tibet and exercising its control on Lhasa Nehru has done strategic blunder and had made deep inroads for bringing PLA to Indian frontiers and bordering regions. (Muni: 3) India has decided in favour and permitted the "Tibetan autonomy under the Chinese suzerainty". After historical panchsheel agreement made in 1954 India was forced to bring back its "military outposts located at Yatung and Gyantse of Tibet. (ibid: 3)

Thus India was more concerned for the national security and rather than supporting Chinese liberation and unification programme. There was large scale militarization in Tibet as there were many military positions constructed in Ladakh. The threat perception of Sino-India relations emerges from the history and destiny of Tibet. China has used the

coercive power to sabotage the secessionism and integrate the periphery into China. Security of the refugees are also cause of concern and few Refugees might be Chinese agent in disguised form. There has been nuclearisation of Tibet by China around Lhasa and Ngapa Tibetan Autonomous and Kham province. The bonhomie between Sino-India was turned into adversarial situation when Tibet was acting as a friendly buffer state and baggage of spiritual legacy when Tibet provoked animosity and hostility between two countries. India's holistic development and global order values of peace were compromised by Chinese ulterior motive to nuclearize Tibet. (Mehrotra: 42)

CHINA AND TIBET HISTORICAL ASSERTION AND CLAIMS

Chinese has the perception of Tibet as an inalienable part of China's territory. Tibet having distinct language, history and culture and religion affirms that Tibet was an Independent nation- state. There are question to ponder over that is Tibet a Country. (Dolma: 14) The core debate revolve over the status of Tibet as politically and historically Tibet has been inalienable part of China while Tibetans asserts and protests that Tibet has been independent country. Tibet was protectorate of Manchu- Chinese Empire against the west Mongol threat. The relationship between Chinese emperor and Tibet's Dalai Lama was patron Priest relationship. Historically Tibet was included as vassal state during Qing dynasty and subsequently Chinese proclaimed Tibet as part of China. (Dolma: 15)

The Chinese troops entered and barged into the Chamdo province to clampdown the movement by smashing death of Tibetans and killing regional governor Nagapo Ngawang Jigme. The two provinces of Tibet were reduced and balkanise as Sichuan and another Yunnan were gradually assimilated and incorporated into China. The remaining portion of Amdo was incorporated into Gansu province. (Mehrotra: 24) Dalai Lama served as secular and ecclesiastical ruler of the Tibet. Mao planned for military intervention in early 1950s. Mao's wanted to transform it into People's democratic Tibet. Mao was aware of the rivalry between Dalai Lama in Lhasa and Panchen Lama in Rikaze. Subsequently Chinese authority and Chinese Communist party tried get support of Panchen Lama to get Legitimacy over Liberation of Tibet. (Jian: 59)

The Shimla convention of 1914 between British India, Independent Tibet and China is treaty which legitimises the legality of McMahon line. India, Tibet and China come together to resolve the issue pertaining to status of Tibet and its border with Tibet. (Reappraisal of India's Tibet Policy 2013:20)



There are four requirements for statehood: they are population, territory, government exercising control over Population and Territory, capacity to enter relations with other states. There has been pro-independence movement which has been quelled by detaining the activists there. The Tibetan people's right to self-determination is more robust and has gained momentum after continued repression as there has been 99 and many more cases of self-immolations. The PRC has not acted as a legitimate government and its claim for territorial integrity has caused Tibet to fight for self-determination rights. The entry of PLA into Tibet is inferred as an illegal act of aggression. Thus the goal post of Tibet has been changing over period of time by his holiness and Excellency Dalai Lama's middle way approach to autonomy, self-government, and right to self-government. (Dharan: 2003) Dalai Lama when started talk with Deng on China's autonomy Dharamsala explained that exile community rang-btsan (independence or self-determination) had been abandoned in favour of rang-skyong-ljong (autonomy). (Norbu: 4)

There would always be separatist threat from Tibet autonomy and Tibetan national identity would pose challenge to China. The Chinese Communist party has labelled Dalai Lama as separatist and he is travelling abroad since 1980s to familiarise people with Tibetan issue and create a lobby for Tibetan People. After 2007 China is trying to cut the influence of Dalai Lama by alienating and isolating him by pressurising foreign leaders and governments not to officially receive him. (Ranade:3)

Dalai Lama has remained a bone of contention between India-China official interactions during Track I and Track II talks. After Internationalisation of Tibetan issue it got substantive attention and prominence. Dalai Lama addressing to US congress has proposed five point peace plan as: converting Tibet as a Zone of Peace, Abandoning Chinese population transfer policy without threatening Tibetans, Respecting fundamental rights and democratic freedoms, protection of environment and continued negotiation for settlement of Tibetan issue. (Kemenade: 58)

CHINA INDIA GROWING HOSTILITY AND RESPONSE TO TIBETAN QUESTION

India was committed to resolve and recognise the integrated one China policy of PRC by accepting Tibet as an autonomous part of China by preserving the cultural and religious identity intact. Dalai Lama is political and religious head of Tibetan Buddhism community and cultural autonomy encapsulates the notion of giving freedom to worship. Chinese are reluctant and hesitant to concede more

then freedom to profess and practice right to worship, while Tibetans want to control foreign, defence and currency. (Muni: 11)

Regarding Chinese aggressive postures and notorious designs and Tibetan independence movement Bihar's leader Jay Prakash Narayan has vocally and emphatically said that Tibetan struggle for right of Man during the late 1960s addressing All India Tibet Conference. Lok Nayak argued that Tibetan movement can't be futile and lost forever as the spirit of human being is immortal, and Tibet can't die and I will be sooner than later renovated and rejuvenated. JP Narayan put forward eloquently saying that "Tyrannies have come and gone and ceases, czars and dictators. But the spirit of man goes forever. Tibet will be resurrected." (Mehrotra: 26)

There was sceptical relationship between China and India with bitter sense of animosity and friction prevailed at the moment when Dalai Lama and his followers were given asylum in India in 1959. The border tension other issues between Sino-Indian relations got escalated when the Chinese PLA's tried to quell the rebellion from Tibet and Chinese wanted to control and suppress the Tibet militarily and politically. KPS Menon the then India's deputy foreign minister expressed deep concern over China's PLA entry into Tibet in 1950 in response Mao drafted response by saying that "Tibet is Chinese territory and Tibet is exclusively part of Chinese internal affairs". Earlier stances during 1950s India has officially denounced the PLA's armed intervention in the Tibet and India has criticised the cynical attitude of China remorsefully by sending official notes and memorandum. (Jian: 81)

INDIA, BUDDHISM AND DALAI LAMA THE RELIGIOUS FACTOR AND INTRIGUING QUESTION OF TIBET

Buddhism is definitely the soft power being pursued by India to create bonhomie between two countries. The Buddhism acts as a tool for cultural integration and re-energize the relationship of two countries. For China Buddhism is equally important to integrate the domestic discontent and disintegration and preserve the territorial integrity of country. India has carried forward the legacy of Buddhism to promote the public diplomacy and inculcated it into policy makers of country. India's bond with other countries has increased because of Buddhism as it is part and parcel of spiritual heritage and has leverage over the outreaching the other countries.

Dalai Lamas have constantly contested for the China's sovereignty over Tibet. Chinese fear for secessionist movement in Tibet to liberate Tibet and echoing of Free Tibet sloganeering there. Dalai Lama



visited India during 1956 to participate into 2500 years of Buddha's birth. He informed the Indian authorities about the Chinese nefarious plan in Tibet. PM Nehru insisted to return back to China and work for enduring relationship with China. Dalai Lama has softened his attitude towards China and has abandoned his desires to Deng Xiaoping's by submitting his quest for Tibetan Independence which Deng is reluctant to offer and instead he focuses on and has asked for full autonomy to Tibet. (Muni: 5)

During late 1956 there was official stay of Dalai Lama to the holy land of Buddhism where he conclusively decided to stay permanently and work from here. India was overwhelmed by Lama but his presence was questionable and suspicious. Indian Prime Minister without provoking Chinese premier pleaded Dalai Lama to get back to China and work with them on peaceful seventeen point Programme there.(Jian: 83)

Buddhism has played a significant role in the development of Tibetan linguistic and cultural heritage. As stated and said by Falcone Wangchuk in 2008 quote unquote that for many Tibetan in India is a "home away from home". (Dolma: 10) Tibetan Buddhism has been reaching out and spreading to Chinese society from late 1990s. There has been cultural and religious integration and revival of Tibetan and Himalayan region Buddhism after settlement of Tibetan Diaspora. Dalai Lama has aptly described the "Indians as Guru and Tibetans as their Chelas i.e. disciple."(Dolma: 12)

There has been pertinent question and debate to ponder over how religion has transcended beyond borders and has global footprint felt. Thus Tibetanisation and Tibetan Buddhism got prominence and momentum. Tibetans lamas are reaching out to the problems associated with the Chinese society. These Lamas are allowed to deliver special lectures in university regarding social ethics, morality and globalisation. Lamas are pushing for cohesiveness and social engagement in Chinese society through Buddhism. This Tibetan Buddhism came from India and has been preserved through ages for civilizational linkages. Tibetans are relegitimising the social presence of Tibetan Buddhism in China is soft power projection. (Yu: 2016)

The relentless and untiring work of Dalai Lama got acknowledged and he was awarded Nobel Peace prize in 1989 for his amicable and peaceful solution for Tibetan movement. The complex problem of Tibet got spotlight and there was growing feeling of disgust and hatred for Chines police terror and appreciation for Dalai Lama's peaceful non-violent solution for Tibet issue. China considered that Tibetan High priest has been converted into agent of western forces playing into their hand to enervate, contain and disintegrate China. (Kemenade: 60)

Buddhism as worked as a bridgehead between two civilisations of countries. Buddhism has been deliberately and purposefully incorporated into foreign policy articulation and diplomatic interaction of two countries. Tibet is the immediate issue between India and China where the relationship between two countries got entangled and enmeshed. Dalai Lama served as the head of Tibetan theocracy of Gelugpa School and controlled the political power. The second school was influenced by Panchen Lama. Karmapa was the highest leader of Kagyu School. Tenzin Gyatso who is the 14th Dalai Lama had to escape from Chinese threat and took asylum and shelter in Himalayas for seeking sanctuary in 1959 in India which flared up the relationship and worked as divisive politics between two countries.(Scott: 156)

The Chinese government were irked and provoked by the creation of (TGIE) Tibetan government in Exile by Central Tibetan Administration, CTA at Dharmasala which deteriorated the relationship to low level. The Indian government has given due permission to Dalai Lama to visit Twang in 2009 infuriated the relationship with china in 2009. This led to disagreement and dissonance in relationship between two countries. As Ambassador David Scott clearly states that China has been fearful and anxious of growing legitimacy and sense of insecurity that Buddhism as a soft power has political control over Tibet. Thus Buddhism spills across the Sino-India border which remains elusive in foreign policy and domestic policy. Further David Scott says that China remains hypersensitive to the foreign interference and meddling into Tibetan Buddhist affairs which portrayed as a insecurity dilemma for weakening security control over Tibetan Buddhism.(Scott:162)

The China's ambition to assimilation and liberation of Tibet was formidable task perhaps, the democratisation process initiated by China was never a Peaceful as it culminated to massive death tolls. The liberation caused death of millions of Tibetans and more than Thousands cultural centres, monasteries were decimated and destroyed by China. Also during the Cultural Revolution (1966-76) PRC in Tibet has destroyed the numerous monasteries, places and other aspects of Buddhism. China has been waiting for the demise of compelling personality Dalai Lama which has the potential for unlocking the China's longstanding problem with Tibet which is eagerly watching for disintegration of Tibetan movement. (CRS 2008:11)

Preservation of Tibetan Culture and language seems to be a daunting task as it is facing subversive threat from the China. The Tibetans freedom to travel abroad and attend the religious pilgrimage was curtailed and their passports were intentionally destroyed by the Chinese immigration authority for Tibetans attending Dalai Lama's



teaching in Bodhgaya. Now the local Tibetans are acculturated and even intermarry within the ethnic groups. There is provision for cultural rights of ethnic minorities shall be guaranteed echoing the provision of PRC ethnic Autonomy law and PRC education law for respecting and securing to use their own ethnic languages. Tibetan language and culture face the marginalisation and Chinese government and party is enforcing the Mandarin Chinese as main language for instruction in Tibetan areas. Then the recent incident of Tashi Wangchuk was set to trial at Yushu province as there was allegations regarding charges of inciting separatism and was criticising the government for preserving the Tibetan Culture and languages. (Tibet: 5)

BUDDHISM AS TRACTION IN INDO-TIBETAN RELATIONSHIP

Tibetan pilgrims used to visit Gaya, Sarnath and Sanchi associated with live of Buddha. Indeed its great pleasure that. XIV Dalai Lama and other senior Lamas are valuable assets to India for international diplomacy. The re-establishment of ancient historical Buddhist institute of learning Nalanda University is major step in this regard. There has been cultural and religious linkages between India and Tibet over more than 2000 Years, where Tibetan Buddhism is influenced and guided by key philosophy and teachings obtained from India as well as its script. The establishment of Tibetan refugee's settlements, Buddhist monasteries and educational institutions have played a significant role in spreading the Tibetan identity and culture, preservation of heritage across country. The philosophy deeply embedded in the Monastic system and government (religious/political) was basic framework for Tibet's relationship with neighbouring states India as (Guru-Patron, Guru-shishya or Choe-yon relationships). (Reappraisal of India's Tibet Policy: 22)

Tibetans has developed the Lamaist society which founded the Sakyapa, Kadampa and Kagyudpa schools of Tibetan Buddhism. Similarly the relationship between Tibets and Mongols was unique as priest-patron relationship as cho-yon. Tibet received protection from Buddhist Mongol emperor and in returned by providing spiritual guidance from Lamas of Tibets thus relationship involved the reciprocal legitimacy of authority. (Dulaney and Cusack: 7)

RECENT TIBET UPRISING AND OUTRAGE IN 2008

During Olympics 2008 Tibetans protested against the Chinese as many Lamas took over the streets in Lahasa. Police was there to suppress the revolt and rebellions by arrest and detention. Chinese army quelled the rebellion killing many Lamas.

There was international attention once again on the territory which was ignored for moment. International court of Justice has declared that self-determination is acknowledged right and cannot be misappropriated. Tibet has been part of Manchu government and Tibet is independent state with its own sovereignty over its territory. (Yu Emily)

The Buddhist monks during the Olympic 2008 marched around the Lhasa to mark the 49th anniversary of Tibetan uprising against Chinese rule. March 10, 2008 marked the 49th years of unsuccessful Tibetan uprising against Chinese rule in 1959. There was similar kinds of protests and demonstrations spreading out from Tibetan Autonomous regions TAR spreading out in parts of Sichuan, Gansu and Qinghai provinces with Tibetan population. (CRS 2008) There were numerous cases of self-immolations in the Tibet autonomous areas of China. There has been repressive policies followed by China in Tibetan Autonomous areas where there is use of extensive and intrusive surveillance, stringent measures which restricts the Tibetan's fundamental rights and pervasive displays of military and police forces.(Tibet:4)

CONCLUSION

The paper deles into nuanced way the Tibetan question and imbroglio faced by India China and Tibet. The relationship with China has slumped and there is growing manifestation of doubt and distrust due to Tibet Hostages in India. Although India has shown appositve gesture by accommodating the Tibetans by providing another abode hear in India. There has been certain changes and continuity in our policy regarding China, by showing Kindness and leniency to Tibet issue. The fragile relation has been maintained despite adversarial situations between two countries as Tibetan aspirations long live and continue to be unabated. The syncretic and composite culture is bonded by Buddhism in region.

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ANALYSIS OF THE CONTRIBUTION OF MEDIUM SMALL MICRO ENTERPRISES (MSMEs) TOWARDS THE REGIONAL DEVELOPMENT IN MEDAN JOHOR SUB-DISTRICT, MEDAN CITY

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ABSTRACT

This study aims to analyze the contribution of micro, small, and medium enterprises (MSMEs) to regional development in the Medan Johor sub-district, Medan city. The method of analysis used in this study is multiple regression analysis. The results showed that the factors of capital, number of workers, place of business, formal education, informal education, and legality of business entities simultaneously affect the income of MSMEs in Medan Johor sub-district, Medan City. Partially the variables of capital, number of workers, and formal education show a significant influence on the income of MSMEs in Medan Johor Kota Medan District. Meanwhile, the dummy variables for a place of business, informal education, and legality of business entities do not show a significant effect on the income of MSMEs in Medan Johor sub-district, Medan City.

KEYWORDS: MSMEs, employment and regional development

1. INTRODUCTION

Based on data from the Central Statistics Agency (BPS) in the Ministry of Cooperatives and Small and Medium Enterprises (UKM) (2011), it shows that 99.99% of all business actors in Indonesia are MSMEs, the remaining 0.01% are Large Enterprises (UB). When viewed from the perspective of employment, MSMEs can absorb an average of 97.17% of the workforce. Meanwhile, the average contribution of MSMEs to Gross Domestic Product (GDP) was 57.88%.

Industrial development in a country is very supportive of economic growth so that one of the strategies taken by the government is to empower and grow Micro, Small, and Medium Enterprises (MSMEs) as the basis for populist economic development. History has shown that Micro, Small,

and Medium Enterprises (MSMEs) in Indonesia still exist and thrive despite the economic crisis since 1997. Until 2011, MSMEs were able to contribute significantly to state revenues by contributing 61.9% of gross domestic product (GDP) income through tax payments, which are described as follows: the micro-business sector contributed 36.28% of GDP, the small business sector 10.9%, and the medium business sector 14.7% through tax payments. Meanwhile, the large business sector only contributed 38.1% of GDP through tax payments (Central Bureau of Statistics (BPS), 2011).

At the regional level, especially in the city of Medan, it can be seen that the economic growth of the city of Medan can not be separated from the contribution of MSMEs in general. This can be seen



from the large number of MSMEs, with a total of approximately 242,890 MSMEs units consisting of the types of service trading ventures, the handicraft industry and various other enterprises, where both the licensing and the legal aspects of MSMEs in Medan City have not been optimally arranged. As for the types of MSMEs in Medan, namely businesses in the culinary field, printing services, making handicrafts, and so on. The proportion of the number of micros, small and medium entrepreneurs reaches 99.8% of the total economic enterprises in Medan. It means that the number of MSMEs is nearly 500 times that of large companies. MSMEs' contribution to the city of Medan, however, is estimated to have reached just 39.8 percent, while large companies have reached 60.2 percent. The influence of the large business sector and the small MSME sector is shown by this (BPS North Sumatera, 2014).

Medan Johor District as one of the sub-districts in Medan City, North Sumatra Province, has developed MSMEs with types of businesses such as handicrafts, shoes, cakes, food, and beverages. The existence of MSMEs in Medan Johor sub-district, Medan City has a positive impact on alleviating poverty and unemployment problems to make ends meet. MSMEs' development, however, still faces numerous problems, resulting in poor competitiveness of the imported products. Restricted infrastructure and government access related to licensing and bureaucracy, as well as high tax costs, are the main issues affecting MSMEs. The enormous potential of MSMEs is affected by all the existing problems. Even though MSMEs are said to be able to survive the global crisis, in reality, the problems faced are many and more severe. This is because

apart from being indirectly affected by the global crisis, MSMEs must also face unresolved domestic problems such as labor wages, labor and illegal levies, corruption, and others.

Objective of the study

Analyzing the influence of capital factors, the number of workers, place of business, formal education, informal education, and legality of business entities on the income of MSMEs in Medan Johor Kota Medan District. The research was conducted in Medan Johor Sub-district, Medan City, with the research object of Analysis of the Contribution of Micro, Small and Medium Enterprises (UMKM) to Regional Development. The research was conducted in all areas of the Medan Johor sub-district..

2. RESEARCH METHODOLOGY

This study is qualitative and quantitative according to the type of data and analysis. The population in this study was all actors in the Medan Johor Sub-district of Micro, Small, and Medium Enterprises (UMKM), totaling 452 business units (Medan City Central Bureau of Statistics and Medan City MSMEs and Cooperatives Office, 2015). Sampling is done using probability sampling, namely a sampling technique that provides equal opportunities for each member of the population to be selected as a sample (Sangadji and Sopiah, 2010). Furthermore, using the Slovin formula, the total sample size is 81.88 people and rounded up to 82 respondents as a sample.

Table 1

Population and Sample of MSME Actors per Urban Village

No	Urban village	Total	Sample
1	Kwala bekala	70	$70/452 \times 82 = 13$
2	Gedung Johor	65	$65/452 \times 82 = 12$
3	Kedai durian	104	$104/452 \times 82 = 19$
4	Suka maju	67	$67/452 \times 82 = 12$
5	Titi kuning	80	$80/452 \times 82 = 14$
6	Pangkalan Masyhur	66	$66/452 \times 82 = 12$
	Total	452	82

Source: Medan City Statistics Agency (2015)

Hypothesis

Capital factors, number of workers, place of business, formal education, informal education, and legality of business entities have a positive and significant effect on the income of MSMEs in Medan Johor Sub-district, Medan City.

3. LITERATURE REVIEW

Research by Nurafuah (2015) shows that SME managers should take advantage of business partners for business training, books, and the internet in

finding market information and business management methods so that their business can develop more effectively. Research by Hapsari, Hakim, and Soeaidy (2014) states that the empowerment of SMEs has a significant effect on regional economic growth in Batu City. And from the partial test results, the variables of the number of small and medium enterprises (SMEs) and labor did not find a significant effect on economic growth in Batu City, while for the SMEs Capital and Profit variables, there was a significant effect on economic



growth in Batu City. Research by Rahim and Karana (2014) shows that starting a micro business does not require a large amount of capital, as shown by only 8.6% of micro-entrepreneurs who need capital of more than IDR 9 million.

Micro, small and medium-sized enterprises (MSMEs) are business activities that are capable of expanding job opportunities, providing the community with massive economic services, playing a role in the process of equalization and growing community income, promoting economic development, and playing a part in realizing national stability (Iman and Adi, 2009).

The Central Statistics Agency (BPS) defines MSMEs based on the quantity of labor. Small businesses are businesses that have a workforce of 5 to 19 people, while medium enterprises are businesses that have a workforce of 20 to 99 people. According to the Ministry of Finance, based on Decree No. 316 / KMK 016/1994 of 27 June 1994 of the Minister of Finance, Small Businesses, as individuals/business organizations, have carried out activities/businesses with annual sales/turnover of IDR 600,000,000 or properties with a maximum value of IDR 600,000,000 (excluding occupied land and buildings). The firm, Commanditaire Vennootschap (CV), Limited Liability Corporation (PT), and Cooperatives, for example, in the form of a business organization. While examples in the form of individuals include craftsmen of the home industry, breeders, fishermen, traders of products and services, and others.

According to the 2006 Central Statistics Agency report in Tambunan (2012), there are differences between MUs, UK and MUs in the background or motivation of entrepreneurs to do business. The difference in the motivation of entrepreneurs should be seen as the most important characteristic to differentiate between Micro, Small and Medium Enterprises and Large Enterprises, as well as between sub-categories within the MSME group. Tambunan (2012) states that small entrepreneurs' backgrounds are more varied than micro-entrepreneurs, while their economic background is also the key factor, through looking at potential market opportunities with limited capital constraints, some others have a more realistic history.

According to Dwiwinarno in Haryadi (2010), several factors are inhibiting the development of MSMEs (Micro, Small and Medium Enterprises), including lack of capital and low managerial ability. According to Andang in Afifah (2012), MSME problems can be categorized as follows:

1. Problems that are classical and fundamental to MSMEs (basic problems) include problems

with capital, generally non-formal forms of legal entities, human resources (HR), product development, and access to marketing;

2. Advanced problems, including the introduction and penetration of the export market that has not been optimal, lack understanding of product design by market characteristics, legal issues concerning patent rights, sales contract procedures, and regulations in force in export destination countries;
3. In order to be able to properly face advanced problems, intermediate problems, namely problems from relevant departments, to solve simple problems. These challenges include financial management, collateral, and entrepreneurship limitations.

According to I Gusti in Afifah (2012), the challenges faced by MSMEs and cooperatives include technology, human resources (hr), management, capital, organizations, and institutions. Development can be defined as an activity to add, increase, improve, or expand. The concept of regional development in Indonesia was born from an iterative process that combines the basics of theoretical understanding with practical experiences as a form of dynamic application (Sirojuzilam and Mahalli, 2010). Regional development aims to achieve rapid growth in per capita income, provide and expand employment opportunities, equalize income, reduce disparities in prosperity between regions and promote a balanced economic transformation between the agricultural and industrial sectors through the use of available natural resources while still paying attention to their sustainability aspects. (Todaro 2000).

Simanjuntak (2001) explains that workers are residents who are already or currently working, who are looking for a job and doing other activities such as going to school or taking care of the household, with an age limit of 15 years. Sitanggang and Nachrowi (2004) state that labor is a part of the total population that can potentially produce goods and services. So from this statement, it can be concluded that labor is a part of the population who can produce goods and services if there is a demand for goods and services.

Job opportunities can be generated when there is labor market demand, so that, in other words, job opportunities often indicate labor demand (Sudarsono, 1998). The increase in company labor demand depends on the increase in the public demand for manufactured goods and services (Simanjuntak, 2001). According to Kuncoro (2002), employment is the number of positions filled in as shown in the number of people employed.

4. RESULT

Overview of Medan City and Medan Johor Sub-District

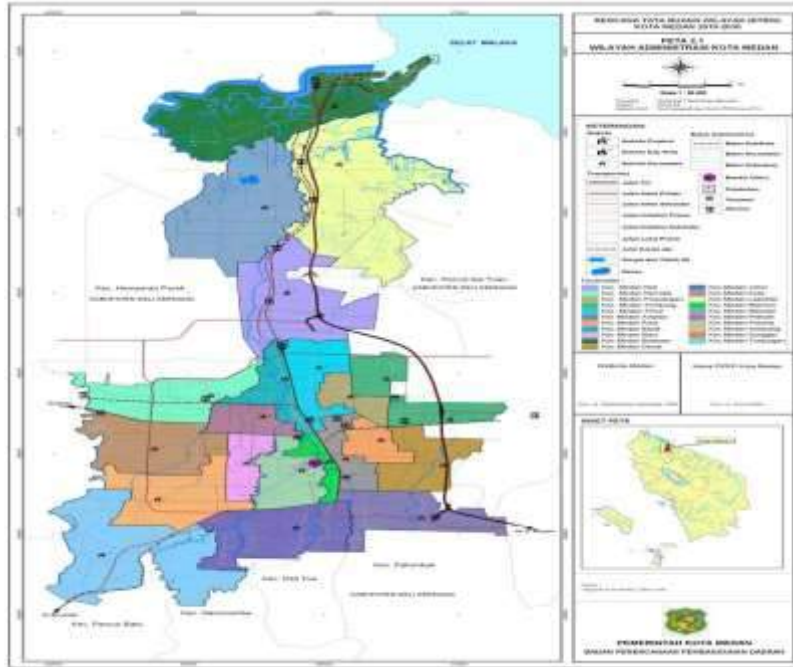


Figure 1. Administrative Map of Medan City

Astronomically, Medan City is located at position 3 ° 30' - 3 ° 43' north latitude and 98 ° 35' - 98 ° 44' east longitude with an area of 265.10 km². Most of the city of Medan is a lowland area with a topography that tends to tilt to the North and is the meeting point for two important rivers, namely the Babura river and the Deli river. Medan City is at an altitude of 2.5 -

37.5 meters above sea level and administratively has the following boundaries:

- North : Deli Serdang Regency and the Malacca Strait
- South : Deli Serdang Regency
- West : Deli Serdang Regency
- East : Deli Serdang Regency

Table 2
Total Population and Percentage of Medan City in 2015 Based on Sub-District

No	Sub-district	Population (people)	Percentage
1	Medan Tuntungan	85.613	3.87
2	Medan Johor	132.012	5.93
3	Medan Amplas	123.850	5.48
4	Medan Denai	146.061	6.69
5	Medan Area	98.992	4.56
6	Medan Kota	74.439	3.83
7	Medan Maimun	40.663	1.87
8	Medan Polonia	55.949	2.52
9	Medan Baru	40.540	1.87
10	Medan Selayang	106.150	4.73
11	Medan Sunggal	115.785	5.32
12	Medan Helvetia	150.721	6.81
13	Medan Petisah	63.374	2.92
14	Medan Barat	72.683	3.34
15	Medan Timur	114.720	5.13
16	Medan Perjuangan	95.882	4.41
17	Medan Tembung	137.178	6.31



18	Medan Deli	181.460	8.06
19	Medan Labuhan	117.472	5.31
20	Medan Marelan	162.267	6.94
21	Medan Belawan	98.113	4.51
Total		47,24	12.224

Source: Medan City Statistics Agency, 2016

Medan Johor District is one of the sub-districts in Medan City with an area of 16.96 km² with an area ratio of 11.57% to the area of Medan City. Medan Johor District is bordered by:

- North : Medan Polonia Sub-District
- South : Deli Serdang Regency
- West : Medan Tuntungan Sub-District
- East : Medan Amplas Sub-District

Geographically, Medan Johor Sub-District is located between 03o 53' North Latitude and 98o 67' East Longitude. This area is located at an altitude of 3 m above sea level, with climatic conditions influenced by sea breezes with relatively high humidity and rainfall. The average temperature is 21o C - 32o C

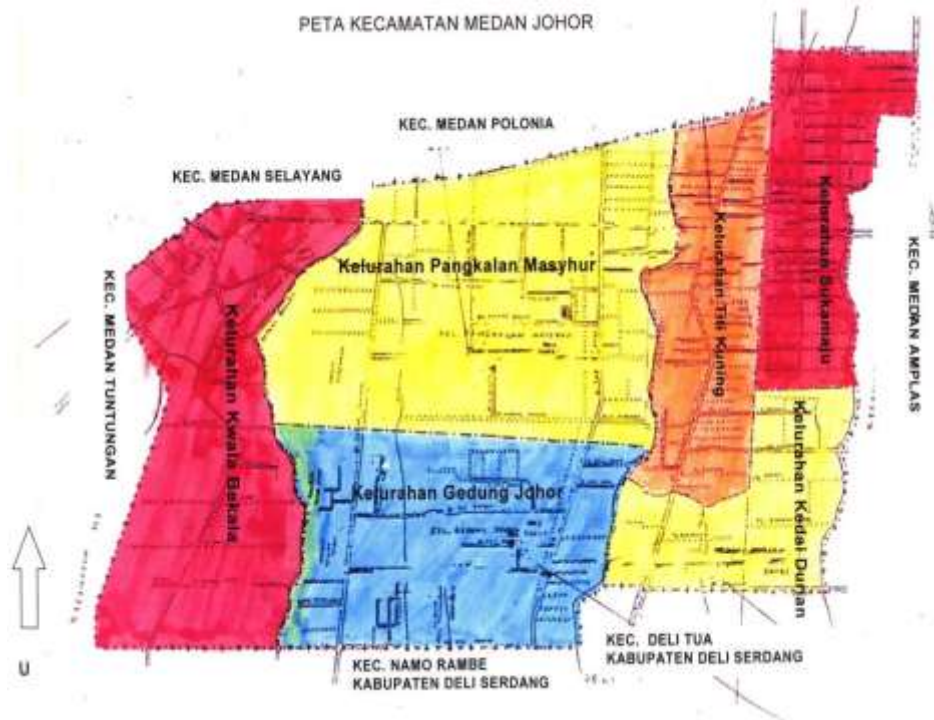


Figure 2. Administrative Map of Medan Johor Sub-District

The administrative area of Medan Johor Subdistrict covers six urban villages with the area of each urban

villages in Medan Johor Sub-district can be seen in Table 3.



Table 3
Area of Medan Johor Sub-District in Every Urban Village, 2015

No	Urban villages	Area (km ²)	%
1	Kwala Bekala	5.50	32.43
2	Gedung Johor	3.15	18.57
3	Kedai Durian	0.98	5.79
4	Suka Maju	1.52	8.96
5	Titi Kuning	1.81	10.67
6	Pangkalan Masyhur	4.00	23.58
	Medan Johor	16.96	100

Source: Medan Johor Sub-District in Numbers, 2016

In Table 3 above, it can be seen that Kwala Bekala urban village has the largest area in Medan Johor Sub-District, namely 5.50 km² (32.43%). Then followed by Pangkalan Masyhur Urban Village covering an area of 4.00 km² (23.58%), Gedung

Johor Urban Village covering an area of 3.15 km² (18.57%), Titi Kuning Urban Village covering an area of 1.81 km² (10.67%), Suka Maju Urban Village is 1.52 km² (8.96%), and Kedai Durian is 0.98 km² (5.79%).

Table 4
Total Population, Urban Village Area, Population Density per Km² in Medan Johor Sub-District, 2015

No	Urban Village	Total Population	Area (Km ²)	Population Density per Km ²
1	Kwala Bekala	34.210	5,50	6.220
2	Gedung Johor	24.211	3,15	7.689
3	Kedai Durian	6.989	0.98	6.132
4	Suka Maju	10.160	1.52	6.684
5	Titi Kuning	22.017	1.81	12.164
6	Pangkalan Masyhur	32.817	4.00	8.204
	Medan Johor	130.414	16.96	7.690

Source: Medan Johor Sub-District in Numbers, 2016

Table 4 explains that the population density is high enough because it is above 100 people / km².

Table 6
Respondent Characteristics

Variabel	Category	Frequency	Precentage
Age	20-30	16	19.51
	31-40	34	41.46
	41-50	20	24.39
	51-60	12	14.64
Gender	Male	63	76.83
	Female	19	23.17
Education	Junior high school	17	20.73
	High school	52	63.42
	Higher education	13	15.85
Labor market	2	19	23.17
	3	12	14.63
	4	7	8.54
	5	6	7.32
	6	10	12.20
	8	11	13.41
	9	2	2.44
	10	3	3.66



12	2	2.44
24	5	6.10
25	1	1.22
26	1	1.22
27	3	3.66

Source: Primary data processed, 2016

These results can be concluded that the majority of MSME respondents in the Johor Sub-district are 20-60 years old, and in general, UMKM respondents are at the productive age to be able to carry out business activities to make a living for the family. Male respondents are still the backbone of the family in earning a living. The majority of MSMEs

respondents in Medan Johor Sub-District have high school education. The respondents of this study have involved the community with diverse labor, and describe that the activities of MSMEs in Medan Johor Subdistrict utilize people who have a labor of 2 to 27 people.

Influence of Capital Factors, Number of Workers, Business Place, Formal Education, Informal Education, and Business Entity Legality on MSME Income in Medan Johor District

Normal P-P Plot of Regression Standardized Residual

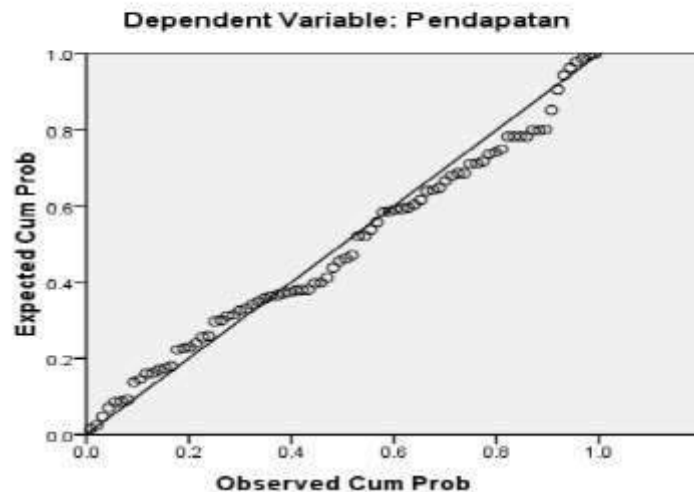


Figure 3. Normality Test Results of Factors Affecting MSME Income

Based on the data processing results as shown in Figure 3, the results show that all data is normally distributed and there is no deviation so that the collected data can be analyzed using additional methods.



Table 7
Kolmogorov - Smirnov Test

		Unstandardized Residual
Normal Parameters ^{a,b}	N	82
	Mean	.0000000
	Std. Deviation	.02696027
Most Extreme Differences	Absolute	.092
	Positive	.092
	Negative	-.046
	Kolmogorov-Smirnov Z	.829
	Asymp. Sig. (2-tailed)	.497

a. Test distribution is Normal.
b. Calculated from data.

Source: Primary Data Processed, 2016

In Table 7, the results of statistical tests show that the Kolmogorov-Smirnov Z value is 0.829 and the significance is 0.497 and the value is above alpha =

0.05 (Asymp. Sig = 0.497 > 0.05), so that the Ha hypothesis is accepted, meaning that the residual data is typically distributed.

Table 8
Results of Multicollinearity Assumption Test Analysis

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Modal	.149	6.704
	Jumlah Tenaga Kerja	.111	8.973
	Tempat Usaha	.196	5.110
	Pendidikan Formal	.353	2.833
	Pendidikan Informal	.783	1.277
	Legalitas Badan Usaha	.159	6.303

a. Dependent Variable: Pendapatan

Source: Primary Data Processed, 2016

Based on Table 8, it can be concluded that the independent variable does not occur multicollinearity

so that the model has met the classic assumption requirements in the regression analysis.

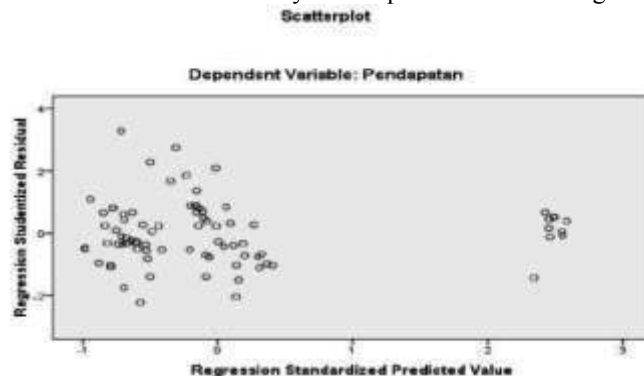


Figure 4. Heteroscedecacity test results of Income MSMEs

The randomly scattered dots identify no heteroscedasticity and the regression model is suitable to be used to predict MSME income. So it can be concluded overall that the regression model

meets the requirements of the classical assumption test.

**Table 8**
Glejser test

Coefficients ^a		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	Sig.
1	(Constant)	.141	.091		.125
	Modal	-.011	.006	-.540	.058
	Jumlah tenaga kerja	.008	.007	.367	.262
	Tempat Usaha	-.006	.008	-.181	.461
	Pendidikan Formal	.023	.018	.228	.216
	Pendidikan Informal	.005	.004	.145	.240
	Legalitas Badan Usaha	-8.227E-5	.009	-.002	.993

a. Dependent Variable: abs_res1

Source: Primary Data Processed, 2016

The results show that there is no significant parameter coefficient for the independent variable, namely capital = 0.058 > $\alpha = 0.05$, the number of workers = 0.262 > $\alpha = 0.05$, place of business = 0.461 > $\alpha = 0.05$, formal education = 0.216 > $\alpha = 0.05$,

informal education = 0.240 > $\alpha = 0.05$, and business entity legality = 0.993 > $\alpha = 0.05$. So it can be concluded that the regression model does not have heteroscedasticity.

Table 9
Coefficient of Determination

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.999 ^a	.999	.999	.02802

Source: Primary Data Processed, 2016

The calculation result for the R Square value is 0.999. This means that the independent variables (capital, number of workers, location of the business, formal education, informal education, and legality of

business entities) above will explain 99.9 percent of MSME revenue, while the remaining 0.1 percent is explained by other variables not included in this study.

Table 10
Simultaneous Test Results (Test F)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	57.686	6	9.614	12247.487	.000 ^a
	Residual	.059	75	.001		
	Total	57.745	81			

a. Predictors: (Constant), Legalitas Badan Usaha, Pendidikan Informal, Pendidikan Formal, Modal, Tempat Usaha, Jumlah tenaga kerja

b. Dependent Variable: Pendapatan

Source: Primary Data Processed, 2016

This means that the independent variables (capital, number of workers, place of business, formal education, informal education, and business entity legality) are significant in explaining the income of MSMEs

**Table 11**
Statistical test-t

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.446	.151		9.554	.000
	Modal	.906	.010	.909	95.216	.000
	Jumlah tenaga kerja	.089	.012	.085	7.674	.000
	Tempat Usaha	.005	.014	.003	.360	.720
	Pendidikan Formal	.067	.030	.014	2.230	.029
	Pendidikan Informal	.005	.007	.003	.634	.528
	Legalitas Badan Usaha	.006	.016	.004	.402	.689

a. Dependent Variable: Pendapatan

Based on Table 10, the multiple regression equation can be arranged as follows:

$$Y = 1,446 + 0,906X_1 + 0,089X_2 + 0,005X_3 + 0,067X_4 + 0,005X_5 + 0,006X_6$$

The multiple regression equation model means:

1. A constant value of 1.446 means that if the independent variables (capital, number of workers, place of business, formal education, informal education, and legality of business entities) are considered constant, then the income of MSMEs is 1.446.
2. The capital variable has a positive effect on MSME income with a coefficient value of 0.906, meaning that every 1 addition, the capital variable will increase MSME income by 0.906.
3. The variable number of workers has a positive effect on MSME income with a coefficient value of 0.089, meaning that for each additional 1, the variable number of workers will increase MSME income by 0.089.
4. The calculation result for R Square value is 0.999. This means that the independent variables (capital, number of workers, location of business, formal education, informal education, and legality of business entities) above will explain 99.9 percent of MSME revenue, while the remaining 0.1 percent is explained by other variables not included in this study.
5. The formal education variable has a positive impact on MSME income at a coefficient value of 0.067, which means that the formal education variable would increase MSME income by 0.067 for each addition of 1.
6. The variable of informal education has a positive effect on MSME income with a coefficient value of 0.005, meaning that for each additional 1, the informal education variable will increase MSME income by 0.005.

7. The legality variable of the business entity has a positive effect on the income of MSMEs with a coefficient value of 0.006, meaning that every 1 addition, the legality of the business entity variable will increase the income of MSMEs by 0.006.

5. DISCUSSION

a. Capital

The capital used by MSME actors has a positive and significant effect on MSME income in the Medan Johor sub-district, Medan city. This result is by the Cobb-Douglas theory which states that production output is influenced by capital. These results indicate that high capital will increase the amount of production because in the production process costs are needed to purchase materials, equipment, and pay employee salaries.

b. Workforce

The number of workers in Medan Johor Sub-District, Medan City is having a positive and substantial impact on MSME income. These findings reflect the growing number of jobs, which will raise the income of MSME actors. This is due to the theory of Cobb-Douglas that efficient production is affected by labor. MSME players believe that the number of workers has a very strong impact on the amount of production because in the production process they still use manual machines so they require more labor.

c. Business location

In Medan Johor Sub-district, Medan City, the location of business used by MSME actors has a positive and insignificant impact on MSME revenue. These findings suggest that business premises with legality would increase MSME actors' income, but could not have dramatically affected MSME revenue.



d. Formal education

Formal education has a positive and significant effect on the income of MSMEs in the sub-district Medan Johor, Medan area. In the field of human capital, education is a form of investment that plays a role in accelerating economic growth. This investment is a long-term investment, so only after ten years will the results be realized (Atmanti, 2005).

e. Informal education

Informal education has a positive and insignificant effect on the income of MSMEs in the Medan Johor sub-district, Medan city. These results indicate that informal education in the form of training will increase the income of MSME actors, but it has not been able to significantly affect MSME income.

f. Legality of Business Entities

The legality of a business entity has a positive and insignificant effect on the income of MSMEs in the Medan Johor sub-district, Medan City. These results indicate that the legality of a licensed business entity will increase the income of MSME actors, but it has not been able to significantly affect MSME income.

6. CONCLUSION

The results of the regression analysis, capital factors, number of workers, place of business, formal education, informal education, and legality of business entities simultaneously affect the income of MSMEs in Medan Johor Kota Medan District. Partially the variables of capital, the number of workers, and formal education show a significant influence on the income of MSMEs in Medan Johor Kota Medan District. Meanwhile, the dummy variables for the location of the business, informal education, and legality of business entities do not show a significant effect on the income of MSMEs in the Medan Johor sub-district, Medan city.

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THE CHARACTERISTICS OF THE MANUSCRIPT OF YĀR MUHAMMAD YĀRĪ'S *DIWĀN*

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ABSTRACT

The present paper deals with the characteristics of the manuscript of Yār Muhammad Yārī's diwān, who was one of the prolific poets of Kokand literary circles in the end of the 19th and the first half of the 20th century. One manuscript of Yār Muhammad Yārī's diwān, autographic bayoz and some scattered poems and translations are preserved till our days. Although Yār Muhammad Yārī who was known as talented poet had one autographic diwān, and it was preserved under state protection, and one collected poems on the base of this diwān were published, scholars did not pay attention to it for a long time. In paper we investigated the conversion of diwān into Cyrillic alphabet, analyzed the number of poems during the process of conversion, their genre, the subject and content of poems included in diwān, their structure and idea, as well as poet's skills. During the study, Yār Muhammad Yārī's diwān was compared with diwāns who lived before him, and was found that in some cases his diwān has similarities and in some cases differences with their diwāns and we expressed our opinions on it. We stated that this opinion belongs only to the author of conversion. Moreover, we analyzed quotations from Qur'an and other historical aspects. Thereby we tried to shed light on the degree of Yār Muhammad Yārī's skills as a poet. We did not overlook the fact that poet's diwān includes two sacral sources of Islamic world, and that Yārī translated them with a great ability.

KEYWORDS: *literary environment, Kokand, 19th century, 20th century, Yārī, diwān, manuscript, autograph, monotony, poetry, genres, content, ideal tendency, formal tendency, the variety of genres, the quantitative difference, the genre difference, the meaning difference.*

INTRODUCTION

The freedom and current global processes necessitate getting free totally of clichés in literary, source and textual studies. So, when we examined the old and new sources on one of the parts of the great Uzbek literature, i.e. the Kokand literary life of the end of the 19th century and the beginning of the 20th century, we found Yār Muhammad Yārī, whose life and literary works were studied very little or were completely dismissed.

P. Qayumov [5, 712; 6,312], T. Fattah [4, 3-9], A. Madaminov, M. Valikhanov [8], S. Abdulla [10, 63-65] and T. Pirnazar [9] studied Yār Muhammad Yārī's life and works partially. Besides a short article on Yārī in Uzbek Soviet Encyclopedia [7, 240] there is no any data on his life and works in other sources.

It is noteworthy that the bulk of Yār Muhammad Yārī's literary heritage is much more extensive than his contemporary poets'. Considering the comprehensiveness of Yārī's literary heritage, and the fact that it's not well-known in academia, we

found necessary to present poet's works to reading public; thereby to inform about the elements of his poems.

The number of Yār Muhammad Yārī's works we discovered is 546, so the number of couplets is 7.900 and of lines is 15.800. Additionally, if we take into account poet's two translated works, this number increases. Consequently, Yār Muhammad Yārī's literary heritage is much more extensive with comparison to the literary heritage of other poets of Kokand literary life. During the study, we decided that his literary heritage may be divided into groups as following:

- 1) Yār Muhammad Yārī's poems which were included to the manuscript of his *diwān*.
- 2) Poet's own collected poems.
- 3) The only collection of poems printed in 1943.



4) The poems included to Polatjon Qayumov's *Tazkira-i Qayumi* and *The History and Literature of Kokand*.

5) A little amount of poems printed in local press.

The important *diwān* in Yār Muhammad Yārī's literary heritage [2] was composed at the beginning of the 20th century. The description of the handwritten *diwān* is as following: the manuscript is of 233 pages, copied to simple Kokand paper in *nasta'liq* script style, no pāyḡirs. The text is on two columns in each folio. The date of copy is omitted; we assume that it was copied at the beginning of the 20th century. The autograph. Black cardboard binding with three seals. The size of manuscript: 15 x 20 cm, the size of text: 11 x 15 cm. Some texts are copied in *nimshikasta* and *mullāī* script. The condition of preservation is average. Some poems are written on the margins of the book. As time passed by, the patterns had been erased, and the edges of binding began to be torn off. The ID number 9358 of manuscript is glued down on the lower part of binding, and there is an inscription that it is preserved in Biruni Institute of Oriental Studies. There are defects as tearing, stains and inks in several folios. The texts of poems are copied with high accuracy; though reading some of them is a matter of difficulty.

Taking into account that Yār Muhammad Yārī's *diwān* which was of significance in his works was composed in 1900, consequently, in the following half century period he was engaged in continuous literary activities; hence it increased the number of his poems. The poet lived a long life, and his literary life passed through two or three historical periods which certainly influenced the meaning and the structure of his poems. As a result, we may see such features as diversity of the subjects, traditionality, modernity and perfection in his poetry. Considering those and historical aspects, we may classify Yār Muhammad Yārī's literary heritage into 1) the poems written in the enlightenment period, 2) the poems written in *jadidizm* period, and 3) the poems written in Soviet period.

II. DISCUSSION

Diwān includes poems composed in ten genres of Islamic oriental poetry, they are:

1. *Gazals* – 315 poems
2. *Mukhammases* – 211 (94 of them are *khas mukhammases*, and the rest are *takhmis*)
3. *Murabba'* – 6
4. *Musaddases* – 6
5. *Tarjebands* – 1
6. *Tarkibbands* – 1
7. *Tarikh* – 3
8. *Muashshahs* – 20
9. *Muammas* – 5.

This *diwān* is of significance in Yār Muhammad Yārī's poetry. We prefer to call it as collection of poems rather as *diwān*. It should not be neglected that not all of Yārī's contemporaries composed *diwāns*; for instance even a many-sided poet like Muqimi did not compose a *diwān*. His *diwān* (in a sense of collected poems) was composed by Russian missionary N. Ostroumov. The first one was published in 1907 under a title *Diwān*, the next one in 1912 under the title *Diwān ma'a Hajwiyat*. The process of composing *diwān* is complicated, thus we cannot call all poets as "*sahib-i diwān*". Because to compose a *diwān*, it is necessary to write poems of different genres, classify them first by genres (*gazals*, *musammāt* and so on by short genres), then in alphabetic order. Moreover, it must be named properly and have an autobiography in opening paragraphs. If we take into account his continuous literary work in the period when composing *diwāns* was privileged as well as in the period when it was considered as a mistake, it becomes clear why he did not compose a *diwān* in traditional way. Moreover, in Yārī's *diwān* (as above-mentioned, it should be considered as collection of poems, not as *diwān*), the poems of various genres are not placed properly to *diwān* genre. Indeed, the first poems are placed according to Arabic alphabet, the *hamd* and *na't* are placed at the beginning of the collection; however, subsequently this order was violated. Probably at the beginning poet had an attempt to compose *diwān*, but afterwards because of different reasons he began to place every poem to the collection. Therefore, this handwritten *diwān* should be understood as a collection of poems.

Taking into an account that Yār Muhammad Yārī's *diwān* include many genres of poetry, there can be observed the variety of subjects of poems. First these poems are on the genre of *hamd* and *na't*, the other ones are the poems encompassing the various aspects of human life. If it is observed with more attention, there can be seen that there are collection of poems narrating about moral, educational and sufi lifestyles. The poems in *diwān* can be considered as a reflection of poet's spiritual and philosophical world. It is also should be noted that these issues showing poet's inward life are reflected clearly and exactly in his poems. Indeed, these poems reflecting the inner life of poet did not appear of themselves or out of nowhere. They had lived on the classical oriental literature and poems of contemporary poets. In other words, classical oriental literature became as a base and example for Yār Muhammad Yārī's literary activities as well as for other poets. Consequently he found his own style of writing among that traditional process, and his poetry obtained recognition of his colleagues and other readers.



If the poems in Yār Muhammad Yārī's *diwān* are classified by their sense and evaluated, the issues we mentioned above will become more clearly.

1. The *hamd* poems in *diwān*. The *hamd* poems in *diwān* are not so much. The *gazals* composed for the Arabic letter "alif" and *mukhammas* present *hamd* poems. This is one of them:

*Ey Wahib-i khalq-i ashyo,
Ey qodir-i kull-i tawono* [2,2b].

It seems that this *gazal* differs from the former poets' poems by some of his characteristics. The beginning of *gazal* begins with the addressing to God:

*Ey jamiki narsalarni khalq qilgan zot!
Ey jamiki narsalardan qudratli wa qodir bo'lgan zot!*

Then poet says:

*Lutf aylabon ol ilkim,
Qoldim oyog' o chu g'abro.*

He asks God to show a mercy and take his hand, since he became as a soil in the world. In the next couplets he admits that the lust crushed him and hopes for God's mercy:

*Bo'yla mani khor etmish,
Nafs-i bad-i shumi raswo.
Nihoniki, mingdin har dam,
Aylar bu quling tamosho.
Mandaki hawo-yi zillat,
Sandin karam-u ato-yo.*

In the following lines he continues to repent of his sins:

*Isyondin otim dedilar,
Doim Rabbano zallamno.*

The next couplets suit the frames of traditional *hamd gazal* genre.

The next *gazal* in *diwān* is written in the balance of *hamd* and *na't*. The first line of this *gazal* is the praise to God, and the second one is to the Prophet Muhammad. The compliments to Prophet's Companions are also mentioned there. It is noteworthy that from the third couplet the poet starts to talk about his autobiography. From the meanings of the lines it is understood that the poet suffers from the hypocrisy in the world, and sees himself as a sinner of the sinners and hence asks God for the mercy.

2. The *na't* poems in *diwān*. Yār Muhammad Yārī's *na't* poems somehow are similar

to the poems praising the Prophet Muhammad in oriental sufi literature. The person of praise is mentioned in the *radif* part of a poem (e.g., Khwaja Ahmad Yassawi, Hakim Sulaymon Ata, Qul Ubaydiy and others), and the Prophet's characteristics are listed and praised. The volume of *gazal* is large enough and the love to the Prophet is described with such modesty that the Prophet's merits and the state of the hero who calls himself as a sinner of sinners appears clearly. At the beginning of poem, the hero turns to the Prophet and asks him for a guide, and because of the love of him he takes himself for a wandering poor man.

*Aylang madadi yo Sayyido yo Ahmado Muhammado,
Ishqing kuyida man gado yo Ahmado Muhammado* [2,4a-5a].

In the next lines because of this love, he asks the Prophet for a charity, and not to deny it:

*Men muflisidur benawo, siz bir shahi olampanoh,
Aylang karam khondur Khudo, yo Ahmado Muhammado* [2,4a-5a].

Then he points out his sadness and shows his hope for the Prophet's guide, and only he is the person who can help in the Judgment Day saying:

*Tongla qiyomat bo'lsa gar ko'z din oqar khun jigari,
Qayga boray man g'amzado, yo Ahmado Muhammado.*

In the following lines he asks God to be able to get the Prophet Muhammad's tomb, and once he reaches it, to whiten his black face, i.e. to forgive his sins. Those couplets show the Prophet Muhammad's merits which we had not understood yet by poet's pen, and that this constitutes his strong desire. In the following couplets poet asks God to give him a chance to make a pilgrimage, and he dreams of to perform all its stages as Ibrahim Adham and other saints and asks God for a guide, and the Prophet for a help.

3. The poems written quoting Qur'an and the Hadith. Yār Muhammad Yārī's several poems are composed quoting Qur'an and Hadith, narrating God's existence, oneness, mercy, all-mightiness. Those poems also supplement *hamd* parts of *diwān*:

*Zirwai ulyo "urwat ul-wusqo" manga,
"Jannat ul-ma'wo" wasli maqsadi a'lo manga* [2,3b].

The phrase "Zirwai ulyo" in the couplet means the highest point of the mountain. However, here the



couplet is used as a metaphor and poet indicates to a highest degree of his love for God. The phrase “urwat ul-wusqo” refers to the 256th ayat of surah Baqara and means strong handle. So the meaning of the couplet will be: My highest love for God serves as a strong handle in my life and by this love I hope for God’s mercy. “Jannat ul-ma’wo” refers to the 19th ayat of the surah Sajda and means “allotted place in the paradise”. The poet tries to inform that this world is the world of various ordeals and the paradise is the award for those who can undergo them successfully by performing God’s commands, and poet intends to say that this is his ultimate purpose.

*Bas “mazog’ ul-basar” bo’ldi qa’rini himmatim,
Har kecha “subhanallazi asro” manga [2,3b].*

In this couplet poet uses the phrase “mazog’ ul-basar” of the Holy Script. This phrase is mentioned in the 17th ayat of the surah Najm in the Qur’an and translated as “he did not look aside and did not exceed the bounds”. The phrase “subhanallazi asro” refers to the first *ayat* of the surah Isra and means “Glorified (and Exalted) be He (Allah) [above all that (evil) they associate with Him] Who took His slave for a journey by night”. Hence the meaning of the couplet is “As God commanded he did not look aside at the highest level of the mercy and took me for a journey by night”.

*Majmai bahrayn orasida yo’q imkon qadam,
“Qoba qawsayn”din o’tibman “aw adno” manga [2,3b].*

Both of the Qur’anic quotations are from the 9th ayat of the surah Najm, and “qoba qawsayn” means “between two eyebrows”, and “aw adno” means “came more closer”. The phrase “majmai bahrayn” means “the gathering of the seas”, and refers to the Night of Miraj in a sense of “between two worlds”. It is important that *radifs* “manga” indicates to the Prophet Muhammad’s (PBUH) closeness to the God.

*Tolibi diydor Musowor yuz ming ko’ksima,
“Robbi arini” yuzlatur nisbai siyni manga [2,3b].*

Abovementioned couplet refers to the Prophet Moses. Moses desires to see God’s face and the phrase “Robbi arini” is quoted from 143rd ayat of the surah A’raf. In the Noble Qur’an Allah says: “And when Moses came at the time and place appointed by Us, and his Lord spoke to him; he said:”O my Lord! Show me (Yourself), that I may look upon You”. Allah said: “You cannot see Me, but look upon the mountain; if it stands still in its place then you shall see Me.” So when his Lord appeared to the mountain, He made it collapse to dust, and

Moses fell down unconcious. Then when he recovered his sense he said: “Glory be to You, I turn to You in repentance and I am the first of the believers.” This is the matchless and the unique event in the human history; the meeting of the slave and the Lord. The meeting of the Creator of the worlds and the small part of those creations. Only God knows the details of this meeting and under what kind of circumstances it happened; and we confine ourselves with what narrated in the Qur’an. Probably this meeting became a source for him to overcome obstacles afterwards, and perhaps that’s why before this meeting Moses abandoned everything and prepared to it secluding himself from people for forty days. And when that days came meeting happened at the appointed place. This meeting in Arabic called “miqat” and means the time and place of the meeting.

It is of important that author’s belief and reasoning appears entirely in his works. Likewise in Yārī’s poems we may see that he was strong religious person. As we analyzed, in *hamd* poems he confesses his sins in tears and asks God to forgive him. He entreats mercy of the God in the Divine Place. In his poems he praises the attributes and greatness of God. However, the author feels his weakness, and repents of his sins. In *na’t* poems he blesses the Prophet and mentions his fine merits and hopes for his intercession. Indeed Yārī in many parts of such kind of works refers to *ayats* and *hadiths*.

4. The poems relating to the hereafter: a) religious poems; the number of poems which are of Islamic belief is also significant and consists of *gazal*, *murabba’*, *mukhammas*, *musaddas* and *masnawi*. Particularly his poem with *radif* “La Ilaha Illallah” is worthy of note. Furthermore, many of poet’s poems on praise to God and epithet of Prophet and poems dedicated to the Prophet’s Companions shows that poet was engaged in writing many poems in that subject. Probably the fact that Yārī was also a pious person led him to compose poems of this kind.

b) Likewise in Yārī’s poetry we may see many *tasawwuf* poems or the poems narrating the divine love. It can be explained by wide spread of sufi orders where he lived. Belonging of his contemporaries Hazini and Furqat to Qadiriya order, and himself to Naqshbandiya confirms this.

5. Didactic poems. Indeed most of his educational poems are naturally in didactic sense. Moreover he has didactic poems dedicated to particular people.

6. The poems narrating the symbolic love. The poet, to keep up with his contemporaries, composed the poems narrating the symbolic love. In his *gazals*, describing a real lover, he tells about the inner life of the beloved, describes her beauty and clothes.



7. The poems composed in the spirit of modernity. Considering the fact that Yārī lived and worked during three important periods of the history of our country, i.e. enlightenment, jadidism and the first 30 years of Soviet rule, it may be seen that the period of composing modern poems corresponds to the Soviet rule. Muqimi, Furqat and Zawqi tried to reflect the problems of the enlightenment period in their poetry. Taking into account that Muqimi and Furqat composed *gazals* with *radif* “surating” describing the changes in the society, Muqimi’s various satiric poems, Furqat’s enlightening *masnawis*, Hamza, Awlani, Cho’lpan and Sufizoda’s poems in jadidism sense, absence of Yārī’s poems in this kind makes us to be deep in thought. Probably there is a strong reason of it. We assume that because of his living far away from the cultural center, his distancing from political and social circles, the prevention of his religious faith of participation in divided actions of political oppositions, all of this influenced him not to write critical poems. However, he also has poems describing different events and corresponding to the political-ideological and social life of that period. Let’s look through some of them. The poet has a poem titled “On the Opening Day of the Muqimi Museum”. In this poem Yārī welcomes the opening of Muqimi’s house museum and states his feelings on this event with pride. *Gazal* begins with this couplet:

*Ketdi jahondin bejo Muqimiy,
Hamrohing bo’lsin imon Muqimiy* [4,46].

Following lines also tells about prayers for Muqimi and by the middle of *gazal* we read these:

*Hukumatimiz saylab kitobing,
Gazetalarga yozg’an Muqimiy.
Har bir so’zingni durri khush oboi
Yoqdiridi o’zga dawron Muqimiy.
Ta’mirini soz etmishlar andoq
Hujrangiz erdi wayron Muqimiy.
Shoirlar etmish hujrangni maskan,
Ketdi shioring har yon Muqimiy* [4,46].

In this collection is a *mukhammas* titled “Kanol”. Here, poet with emotion talks about the Great Fergana Canal which was constructed in 45 days in 1940 manually without any technical equipment (there was not even a machinery which can construct a canal of this kind that time). In the beginnings of *mukhammas*, workers described as skilfuls, hard workers and plodders. The *radif* “qandingni ur” also shows the emotion from the beginning till the end of the poem. The 3rd part of *mukhammas* is as following:

*Mardu mardona yigitlar quwwati bozi bilon,
Zarb dastin ko’rsatib qa’ri zamindin kowlagon,
Khalqi olamga na yakhshi khushguwor obi rawon,
Jo’nu dilda khalq uchun san’atda khizmat aylagon
Artistu artistkalar, tannoqlar qandingni ur* [4,48].

The poem mentioned below narrates the policy of ideology of that period. The construction of the Great Fergana Canal was connected with Stalin and Communist Party. Poet argues that without them the construction of such a huge hydraulic work was just impossible:

*Bosh Stalin, boshqa boshliqlarni farmoni yetib
Tezlik bilan qazilsa muntahosiga yetib,
Bir ulug’ nahr o’ldikim, oldini bo’lmas berkitib,
G’ayratingga, himmatingga jahon tahsin etib,
Yeru ko’kda ofarin owozlar qandingni ur.*

And:

*Rahbarimiz partiya, dohiy bizning ilhomchimiz,
Charkhingiz kuylab jaranglar sozlar qandingni ur* [4,48].

8. Autobiographic poems. Yār Muhammad Yārī’s several poems are written in an autobiographical manner. Additionally, in two *tarjeband*-eposes can be found lines of autobiographic manner. We cite some of them:

*Edi shahri Ho’qanda joyim mani,
Eshikda oqar erdi soyim mani.*

It can be understood that poet Yārī was born and grew up in Kokand. Next two couplets tell about his youth:

*Edim rindi raswoyi har ko’chagard,
Samowardadur non-choyim mani.
Hamma g’aflet ahli birodar erdi,
Topar erdi kunduzda noyim mani* [2,201].

The meanings of couplets make clear that Yārī repents of his waste of his youth to no purpose and in ignorance like most of his contemporaries. Afterwards he became Hakim khalfa’s student, a famous religious scholar of that period; learns Islam and tasawwuf, and some time serves him. Furthermore, with a distress he states that could not be at his service till the end of his life:

*Buzurgi tutub ilkim aylab madad,
Hakim khalfadek rahnamoyim mani.
Anga khizmat etmay nadomatdaman,
Safar qildi piri khidoyim mani
Necha vaqt yurdim qilib robita,
Alar ta’limi virdi doim mani* [2,201].

After a while because of juncture of events he went to Qaqir village and became an imam in one of the mosque until the end of his life. While he was imam



in that village he became Safo Khoja's follower, one of the spiritual leaders of that place:

*Nasibam Qaqirga chaqirdi mani,
Imomlik bila qildi qoyim mani.*

*Yana piri rahbar Safo khojamiz,
Qo'lum bermaka bo'ldi royim mani [2,201].*

However, because of this and former spiritual leaders' death, his Sufi activities were postponed, and he tells about this with a great pity:

*Bo'lub Yor alardek piridan judo,
Aro yo'lda qo'ydi khudoim mani [2,201].*

Yār Muhammad Yārī's *gazzal* mentioned below probably was composed during the period when the pressure exerted on him strengthened or even when he was imprisoned. The poem is composed in *masnawi* style. We assume that the district where poet lived in was called Khojaev. The phrase "arizamiz podoshig'a" must be understood in a sense

that a kingdom application put in for is an indication to a new government. The grateful poet to a new government states that it began taking into account the old's supplications. Here, poet using *tajnis* (*qarilarni yoshig'a, ko'z yoshig'a*) describes his conditions in a poetic way:

*Kho'jayev rayonimizg'a, arizamiz podoshig'a,
Rahm ettilar qarilarni yoshig'a, ko'z yoshig'a [2,160].*

Then poet complains of the head of finance department of local government named Davronov, who in spite of poet's age, confiscated his property:

*Shakhsiyatdin khatlab oldi Davronuf moliya,
Yo'q haqiqatdin nishona bul qari ahvolina [2,160].*

Perhaps, 86 years of age Yārī had a high confidence in government, and such difficulties distress him (*qotti boshim*), and becomes upset because of their (*bag'ri toshlar*) ignorance even to his old age:

*Bul hukumat davlatida tinch edim qotti boshim,
Qo'ymadilar bag'ri toshlar sakson oltidur yoshim [2,160].*

The poet even at this age says to consider any slander according to the law, and draw conclusions from the slanders of the slanderers by checking them carefully:

*Etsalar qonun bo'yuncha harna buyruq qilsalar,
Kim chaqibdur biz ikovni tekshurib bildursalar [2,160].*

In the next couplet he tells about his financial conditions in polyphonic way by assonance of o, k and ch letters and inside rhymes, as a result the states of poet of those times present more clearly:

Boyligim yo'q, moyligim yo'q, oyligim yoqtur mani,

Boylik, oylik chaqimchilarda choqitsa vaqib mani [2,160].

Then he says that the officials of the finance department sold his utensils of daily use, becomes upset and concludes that he agreed even to their destruction of the roof of the house and crushing it on his head:

*Moliya ishchilari sotti uyim anjomini,
Boshim uzra yiqsalar ketmon bilan uy tomini.*

As a result, being distressed poet says:

*Qish kuni qayga boray, hech kimsa sig'durmas mani,
Dushmanim qosimdadur, hech yerga qo'ndirmas mani [2,160].*

Therefore, the poet says if local government does not take into account his request it will make him to address province administration (i.e. to the province department of the Communist Party – *M.D.*).

Because he asks himself if he has to roam about the local officials despite of his elderly age, what will be his states after that? Then he lists the names of contemporary poets and asks them to convey his requests to officials, and hopes that local party department and the head of the finance department of local administration named Aminov would take into account his requests:

*Bir haqiqat qilmasalar ul rais opkomimiz,
Qarisak ham tinchimas ne bo'lar anjomimiz?
Etsalar G'afur G'ulom, Charkhiy, Javdat moddasin,
Ham Firoqiy, olimiy tinchitsalar Yoriy sodasin,
Iltijoyi Yoriyg'a raisi opkomi rayon,
Ham Aminuf moliya ishchi haqiqatdin nishon [2,160].*

In many poems he also expresses grief for not being able to make pilgrimage because of financial straits. The part of *mukhammas* mentioned below confirms this:

*Bosh olib o'z diyorimdin Madinaga ketolmayman,
Bo'lub band Ka'ba yo'li hech ilojini etolmayman,
Qo'limda zodi to'sha yo'q mashaqqatsiz yetolmayman,
Tavo'fi Ka'ba qilmay jismi jonim tinchitolmayman,
Ne kashkashli, sarkashli dilim, g'ashli ko'zim yoshli [2,194].*



It is noteworthy that in those autobiographic poems Yārī describes sacral place and the rituals performed there one by one as he made pilgrimage before. Briefly, Yārī's poems of this kind can serve as a tutorial who prepares to make pilgrimage.

In summary, we think that Yārī's autobiographic poems can help to draw significant conclusions about his personality and mode of life.

9. Folk poems. Yārī's *diwān* also includes poems composed in folk manner. There may be seen the influence of contemporary poets like Muqimi, Zawqiy on these folk poems. However, there is another significant influence that is folklore. Here, one of poet's couplets of that kind:

Nigorin o'ttilar manga qarolab,

Man orqada qolib anga marolab [2,17].

The poet mentions his sweetheart by pampering her that he uses the verb "o'ttilar" instead of "o'tti" and "qarolab" instead of "qarab". This case influenced on the sound and the meaning of the poem, and created the rhythm appropriate to folk music, different from traditional classical literature. In the following couplets we may see it:

Oshiqdari ko'ptur dili bulkhavas,

Men telba majnunga boqdi sarolab [2,17].

As it can be seen from the meaning of the couplet, there are so many enamored men of her. Lyrical hero says that she examined all of them but did not find them suiting her and finally chose him. Then he says:

Qiyoy boqib otti kifrik o'qini,

Jonimga kor etti ko'ksim arolab [2,17].

Then lyrical hero turns to his beloved and says:

Bir yo'la o'tlirmay okhir netarsan,

Paykoning o'qidin bag'rim yarolab.

The *gazal* ends with this original *tashbeh*:

Yoriy chamanzoring ichra qo'zidek,

Yurgaymidur sabzalarining charolab [2,17].

The poet composed another folk *gazal* with this rhyme. This *gazal* also adorned with idioms and anecdote, in general, with the elements proper to folk poetry. The couplets mentioned below confirm the rightness of our opinion:

Qoshimdin o'tti bir dilbar qiyolab,

Sarvi sanobardek qaddin rasolab.

Boqdim orqasidin manga boqar deb,

Imo qildi khumor ko'zin alolab.

Dilbar visoli gar bo'lg'aydir mumkin,

Olur iki dunyosig'a baholab.

Dilbar kulib o'tti onga hoholab.

10. Traditional poems composed in *tatabbu* style. Most of poems in the *diwān* consists of poems written in *tatabbu* (*nazira*) style. Particularly, his translation of Khwaja Hafiz's *tardu aks gazal*, and *tatabbu* on this translation, composition of *gazal* with

"Kelmadi" *radif* similar to Alisher Navai's one, *tatabbus*' on Furqat's "Bormasmiz" *gazal*, and on Muqimi's several *gazals* and their originality show poet's high talent.

11. The *mukhammas*es linked to other poets' *gazals*. There are many traditions worthy of note in classical literature. One of them is composing

*mukhammas*es, i.e. writing a *takhmis* to one of poet's *gazals* by another poet, and thereby there can be seen an ingenuity of both of them. First, the poet who wants to link a *mukhammas* chooses a *mukhammas* which is liked by public, and the lines linked to it must suit the meaning and sound of that *mukhammas*. When we look at the history of oriental literature we can see perfectly composed *mukhammas*es linked to those who past or contemporaries' *gazals*. In fact, there are two types of *mukhammas*. In the first one all lines of *takhmis* belongs to the author of *mukhammas*, and these type of *takhmis* are called *tab'i khud mukhammas*. In the second type *mukhammas* is linked to other poet's *gazal*. In this case the lines corresponding to the meaning, rhyme and *radif* is added before of every couplet. Each type of *mukhammas* requires from poet a great skill.

Yārī composed complete *mukhammas*es linked to the most of *gazals*. Besides this, there can be found couplets taken from several *gazals*. Moreover, there is found opposite ones of it. For

instance, Huvaydo's *gazals* "Yuzingni ko'rsa..." and "Khayolimda yo'q..." consist of 6 couplets, but Yārī's *mukhammas* linked to those *gazals* consist of 7 parts. It is not known what kind of source Yārī took it from. Perhaps, Yārī's muse encouraged him to compose that part or maybe he used it from another manuscript.

As was mentioned above, Yār Muhammad Yārī composed *mukhammas*es to tens of Persian poets' *gazals*. Yārī could compose perfect *mukhammas*es to Persian-Tajik poets' *gazals*. Additionally there are quantitative differences between the parts of the *mukhammas*es linked to Persian *gazals* and the couplets of *gazals* as well as between *mukhammas*es and *gazals* linked to Uzbek *gazals*. For instance Hafiz's *gazal* "Mutribi khushnavo..." consists of 6 couplets, so Yārī linked to it *mukhammas* with 6 parts. However, the *gazal* "Ey khun bahoyi..." in spite of consisting of 7 couplets, he linked to it 6 *mukhammas*es, and one couplet was omitted.

12. Poet's *muashshahs*. There are also many *muashshahs* in the *diwān*. These *muashshahs* are written on names of "Qoz'ikhon", "Homidkhon" and others. *Muashshahs* written on historical persons' names indicate to an intimacy with that person or somehow his influence to poet's literary activity.



This genre of poems helps to understand poet's autobiography and life. Furthermore, *muashshahs* also play an important role in making sense of poet's skills.

13. *Masnu*'s. Professor R.Vahidov who studied Babur's poems of *masnu*' genre claimed that they did not form only the complexity of arts, rather became a tool of making particular idea [11,41].

14. Satiric poems. Yārī's satiric poems are not so much. There is a poem describing the horse in the *diwān*. Muqimi also composed a poem of this type. Specialists place Muqimi's poem "Horse" into category of humorous poems. Muqimi describes old, sick and weak horse. Yārī did not fall behind of this tradition. He also composed a poem on horse in humorous way. The beginning of *gazzal* is:

*Otim samandi maskhara, boshdin oyog'idur yara,
Yemu alaf yo'qlig'indin joni yetubdir hanjara* [2,166].

According to Yārī the state of horse so bad that all of its body is wounded, so whoever sees it will laugh at it. If one tries to feed it there is no any fodder. That's why this horse lost weight and became like a knife. In the next couplet the humour exaggerated much more. Because of the absence of meat, its bones looked like a stairs or cage, and the state of that horse is really bad:

*Qari, kharobi notavon, yo'qtur anga amin omon,
Po'stida zohi ustikhon chun shotu yo bir panjara* [2,166].

The excessiveness intensifies couplet by couplet. The horse is so thin, that he has no any meat in its body and no any teeth in his mouth:

"Yo'rtoqi badnom minqardan misqoli go'shti yo'q..."

Moreover, the horse is so old that Rustam's horse is its father, and its grandfather is the grandson of Go'roglu's Girat:

*Rustam otidin to'xtagan momosi erdi modyon,
Gor'og'lini G'irotiga bobosi erdi nabira* [2,166].

In the next couplets the bad condition of this horse is described with more excessiveness. Poet says if it is feeded with the mix of barley and waste, and if it finds soft oilcake (horse does not eat oilcake, but the bull eats it), it does not even look at the barley. The horse is so sick that if you put in front of him plants like *sho'ra*, *semizo't* and *latakhar* (*latakhar* is a plant called *jag'-jag'* that none of animals eats it – *M.D.*), that the horse will get diarrhea (so funny! – *M.D.*)

The poet keeps on describing the bad state of horse in the next couplets with such excessiveness:

*Sel rohidin quvsang agar, ursang yiqilur bachag'ar,
Gah haydabon, gah chu debon, uch kunda borg'ay
Cho'ng'ara.*

*Talqon, kefak, beda solib, besh-olti kuncha dam olib,
Minsang oni qistav qilib, bir onda borgay Isfara.*

*Minsang yiqilg'ay chalinib, ham qoqinib, ham
cho'qinib,*

Boshi o'z ostida qolib, og'ziga kelgay g'arg'ara.

Bir loyqani ko'rsa yotar, bir ura ming hartak otar,

Boru yo'qni bulg'atar, doim ko'tida tartara.

Zavq yurishi sodadek, har bir oyog'i khodadek,

Boshi khachir yo modadek, ham sirlik aylar arara.

*Jamshid, Zahhok davrini ko'rg'on samandi kafana
sol,*

Ko'z daf'ig'a erkak Jamshiddin boqti Yoriy qarqara.

Hence, by describing such bad states of horse the author in fact intends to show his own grievous condition; since only poor people have a horse with such a bad condition and who cannot change it to a better one. We may assume that poet with such satiric lines tried to show the poor's condition of his period.

III. CONCLUSION

As we said, Yārī has another poem titled "On Dog". In Uzbekistan Soviet Encyclopedia is an

information that this satiric *gazzal* was written in co-authorship with Muqimi. Our recent studies show that Yārī did not compose it on co-authorship with Muqimi, on the contrary, he wrote it himself, since we did not find this *gazzal* among Muqimi's works. Now let's look through this *gazzal*. *Gazzal* consists of 9 couplets. The meter is *ramali musammani mahzuf*. In general meaning the dog presents one detail instead of satiry. The word-combination "...itingiz g'arib" in *radif* allows us to push forward such an argument. So, by the bad state of dog, the poet on one hand intends to show the avarice of dog's owner, that he left dog to fend for itself, and on the other hand he describes the society, i.e. the total indifference of the rich towards the poor.

Therefore, Yār Muhammad Yārī's life and his literary activity, particularly his works are worth of study regarding history of literature and source studies, and this poet has a special and honorable position along with his contemporary intellectuals. However, unfortunately, his life and the characteristics of his idea of his literary heritage have not been studied properly yet.

In spite of some notes about Yārī's life, the information about him is less than we expected. This information was reconstructed by the help of some notes and memories of some people. By this we may conclude that Yārī was one of the intellectuals and



who obtained Islamic and modern sciences very well, and there are many evidences indicating to it. First, the content of his *diwān* forces us to make such conclusion. Moreover, his strong relations with contemporary poets, the kindness showed to him by some Soviet officials and the publication of his book indicate that attitude to him was good enough.

Our studies show that Yār Muhammad Yārī's amount of his literary heritage is much more than literary heritage of his contemporaries. One manuscript of his *diwān*, *bayoz*, some *tazkira* and the poems published in press reached to our days. If we look in terms of genre, we can see that in most cases he composed *mukhammas*, *gazzal*, *murabba'*, *musaddas* and other. He has even comprehensive agiographic works written in *tarje'muashshar* and *tarkibband* genre. He also was engaged in translation. It is worthy of note that he translated lyrical poems from Persian-Tajik and Arabic proses in poetic way.

The subject of Yārī's poems is various. The number of poems concerning the after death life are much more than regarding to this world. The number of poems regarding praise to God, exalts of the Prophet's merits, Islamic history and belief, poems quoting the Prophets' names are numerous. Furthermore, these poems are also comprehensive.

Additionally, he wrote satiric poems and about modern life. His several poems on *muashshah* and *muamma* genre let us to state that he was indeed a prolific poet.

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IMPROVING FIBRE QUALITY AND EFFICIENCY BY INSTALLING A METERING DEVICE IN THE SAWING FIBRE SEPARATION CHAMBER

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ABSTRACT

The article discusses the installation of the sowing device in the working cell of the saw gin in cotton mills and its effect on the quality, fibre density and raw material speed. Based on the results of the experiments, the quality of the fibre was changed depending on changes in the density of raw materials. Based on the theoretical and experimental developments, the quality of fibre and seeds has improved due to the quick release of unoccupied seeds using equipment installed in the working chamber of the saw blade separator machine. In addition to improving the quality of the fibre, the qualitative characteristics of the yarn obtained from it are studied.

KEYWORDS: *saw genie, front fart, working Kamera, seeding machine, saw, well grille, fibre, seeds.*

INTRODUCTION

Uzbekistan is a country with great experience and production base for advanced scientific and technical potential in Central Asia.

Equipment for the separation of fibres DP-130, 4DP-130, 5DP-130 used for the processing plants, partially different from that in which it is intended for the processing of cotton fibres.

When analyzing the operation of the gin fibre separator, it is shown that the sawing process adversely affects the quality of seeds and fibre, that is, raw cotton spikes are concentrated in the centre and adversely affect the quality of the fibre.

Improved fibre and seed quality by installing a wall outlet.

METHODS AND MATERIALS

In this article has been learnt effect on fibre quality of speeding and density of valid raw materials by installed into working chamber separation of sawing fibre cleaning cotton on the plants.

The separation machines of sawing fibre are one of the main technological processes of

cleaning cotton on the factory.

It has been known a long time on the



experiences between the efficient of work sawing fibre separation and the raw material density on the quality of the fibre.

The process of extraction of sawing fibre in the working fibre cotton separate from cotton sedes is giving on process depends on several factors.

The most important of these is the hardness, density of the raw material shaft, the number of separated seeds and others.

It is also necessary to take into account the frictional force generated by the walls of the working chamber under the pressure of the raw material.

All of these factors have an impact on the performance and quality of the fibre extractor.

I.G. Boldinsky [1] in his studies has shown that the increase in sawdust separator productivity is accompanied by an increase in raw material density.

However, as the density increases, productivity increases to a certain extent and then productivity decreases.

This is due to the decrease in the velocity of the raw material rotation due to the tension in the lateral direction of the working chamber; G.I. Mirosnichenko has shown that the process stops completely when the density is 550-600 kg / m³ [2].

A.D. Grober has been conducted theoretical and experimental studies on the mathematical

expression in the study of the characteristics of fibre separation processes

He discovered the statistical regularities of the process of separating the fibre.

In particular, the author has shown that reducing the inequality of cotton transfer to the working chamber of the gin and stabilizing the fibre extraction process improves the quality of the fibre [3].

Analysis of the main studies of the gin extraction process allows us to identify ways to optimize it.

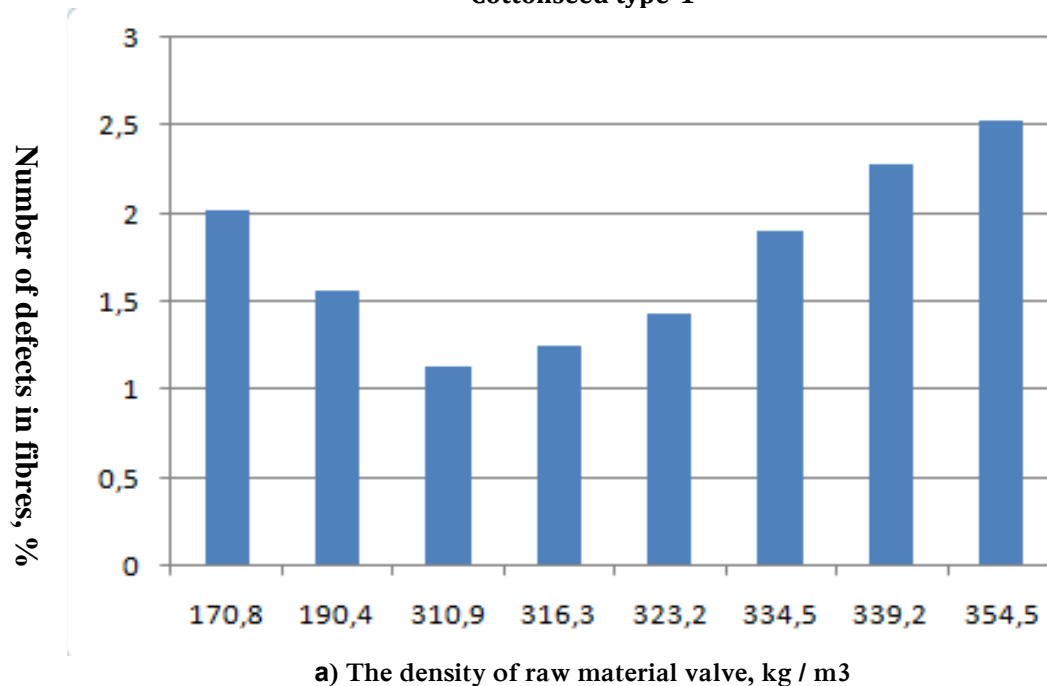
It is necessary to stabilize the gin extraction process to increase the efficiency of the fibre separator and improve the quality of the fibre.

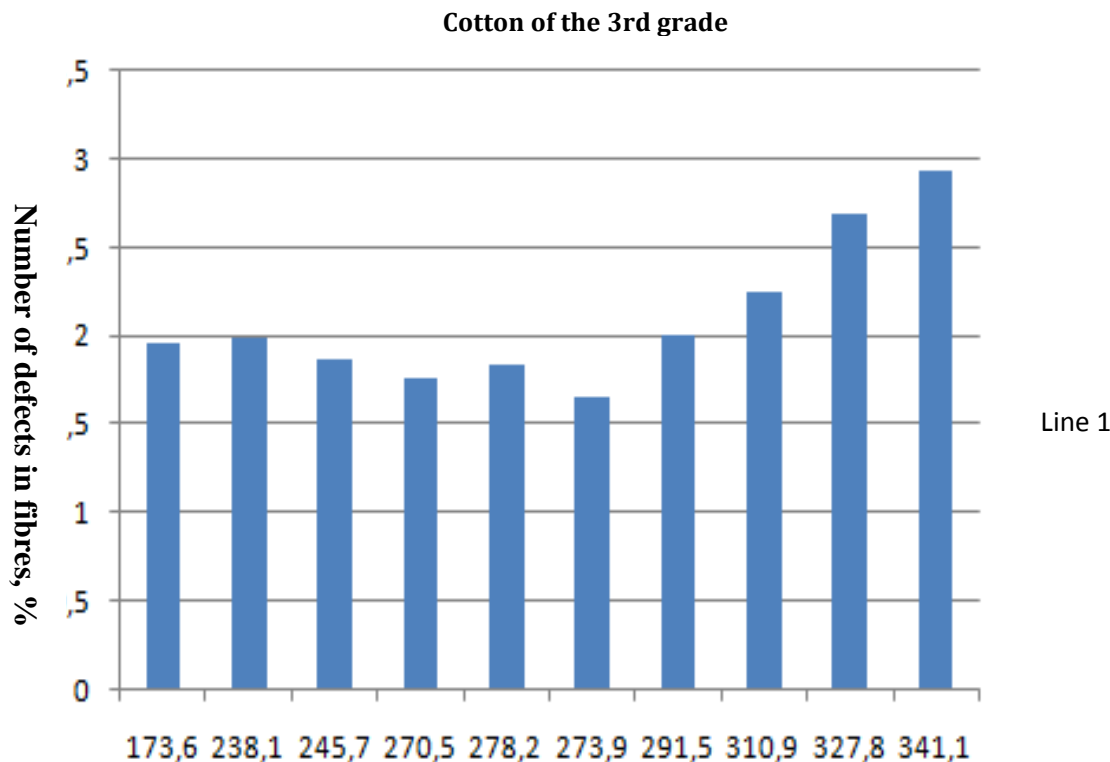
In factories, cleaning of cotton was the practical study of the adjustment of raw material density of the gin separator is regulated.

For this purpose, the saw gin separator depending on the type of cotton seeds will install speed which determined from experience and then adjusted to the density of raw material and then switch to the raw material density and the seeds fattening roller of raw material density of fibre and the effect on the quality of seeds has been taken information by N.Q.Safarov. [4]

It can be seen from the fact that the least damage to the fibre is observed when the raw material density of the grade I type cotton is 310.9 kg / m³ and the III-type 270.5 kg / m³ (Figure 1).

Cottonseed type-1





b) The density of raw material valve, kg / m³
 Figure 1. The amount of impurities and impurities in the fibre (fibrous coatings, combines, knots and tubes) depends on the raw material density in the separation of the cotton fibre of I and III grades (a and b, respectively).

RESULT AND DISCUSSION

Based on the results of experiments at the Shurchinsky cotton clean on the factory, the total number of defects in the fibre after the separation of

saw gin, dirtiness, immature fibre; and has been learning the influence of the density of raw materials on the cause of the increase in the number of broken seeds (table 2).

Saw gin fibres productivity, kg / saw-hour	Raw material weight, kg	Raw material density, kg / m ³	Total amount of defects and fibre contamination, %			
			Total	Fractured seeds and fibres	Large and minor impurities	Knots
The density of raw material is normal						
7,4	40,3	265	2,78	1,26	0,96	0,56
9,1	34,1	278	2,88	1,37	0,99	0,64
10,8	37,8	290	2,97	1,48	0,103	0,76
Reduced raw material density						
12,5	35,2	290	2,46	1,02	1,16	0,28
14,2	40,5	300	2,29	0,94	1,01	0,34

Table-2. Influence of weight and density of raw material on fibre quality



Studies conducted by the Center for Scientific Research "Cotton Industry" showed that the main reason for the defects in the fibre during the separation of fibre is the increased and variable density of the raw material shaft.

When the raw material density increases, the knots, combined nodes and knots, which are badly affected by the weaving process, are formed by the variation coefficient and elongation (Table 3).

Name of the pointer	Units of measurement	Nam-77 1\1		Beshkahramon 1\1	
		In practice 4ДП-130	Modernized 4ДП-130	In practice 4ДП-130	Modernize d 4ДП-130
Productivity of machine	Kg /saw watch	13,6	14,2	13,3	13,8
The number of defects on 1g	piece	267	242	310	285
Including: The amount of dirty	%	110	85	94	80
Seed crust	%	40	31	37	38
Knot	%	117	126	179	167
The thickness of fibre (Nº)	tex	18,8	18,8	18,8	18,8
Prolonged stretch	%	5,4	5,95	4,8	4,9
Relatively	sn\tex	13,2	14,4	10,3	10,8
Coefficient of variation of one thread	%	27,1	27,5	18,1	19
The number of defects on 1g Including: Knot	шт	148	110	147	127
Knots	%	70	52	73	64
Seed crust	%	34	30	34	30
Dirtiness	%	12	10	12	10
Swell of fibre	%	26	18	28	23

Table 3. The spinning properties of the fibre obtained as a result of improving the output of auxiliary sawdust to the working chamber of 4DP-130

To minimize the defects in the process of separating the fibre, the raw material shaft should be maintained at a relatively empty and stable density during the fibre extraction process.

To solve the above problems, a sowing apparatus was installed in the centre of the working chamber, and experimental results were obtained under production conditions.

Analyzed of the quality of the fibre obtained after separation of the input shaft by changing the density of raw materials through an auxiliary seeder In the experiments, Nam-77 type-I was picked up cotton by people, moisture content of 7.5% and before ginning cotton was used with 0.6%

Comparison of fibre separation performance of 4DP-130 saws with the raw material density of 164 mm and speed of 350 m / min with an alternate diameter.

With the increase in productivity, the density of raw materials increases as well, which leads to increased defects in the fibre during the production of fibre.

Comparison of 4DP-130 fibre separator and improved the saw gin separator shows that as a result of the reduction of raw material density, the amount of impurities and contamination in the fibre is reduced by 0.4-0.6% mainly due to defects in the fibre.

According to the results of the experiments, it is necessary to reduce the raw material density to reduce the defects in the fibre during the extraction process.

The data from the spinning laboratory of SPC "Pakhtasanoat Scientific Center" in the present research on the quality of the yarn, also confirmed this.

It can be concluded from the above that the intensity of the feed shaft density and velocity parameters in the process of separating the saw gin depends on the equilibrium between the processes of removal of the purified seeds.

Accordingly, we got acquainted with the basic research on fibre and cottonseed extraction processes.



Studies show that removing seeds from the working chamber using a cotton mill allows the machine to work more efficiently in the processing of basic and lower grades of cotton.

CONCLUSION

Based on the results of the above experiment we can conclude that the density of raw materials is 310.9 kg/m³ and 273.9 kg/m³ as a result of processing cotton of grades I and III. The highest quality of the fibre was achieved, that is, the number of impurities and defects in the fibre was 1.14% and 1.66% (table 1).

Cotton seeds type-1		Cotton seeds type-3	
Raw materials of the valet density, kg / m3	Contains fibre defects	Raw materials of the valet density, kg / m3	Contains fibre defects amount,%
170,8	2,02	173,6	1,97
190,4	1,57	238,1	2,00
310,9	1,14	245,7	1,87
316,3	1,25	270,5	1,76
323,2	1,43	278,2	1,84
334,5	1,91	273,9	1,66
339,2	2,28	291,5	2,01
354,5	2,53	310,9	2,25
		327,8	2,7
		341,1	2,94

Table-1. Type I-III Nam-77 Influence of raw material density on fibre quality in the processing of medium fibre cotton.

Studies have shown that removing seeds from the working chamber through a cotton picker allows the machine to work more efficiently, especially when processing low-quality cotton.

In the central part of the working chamber, three different types of extraction of cotton seed devices have been developed and tested, the experimental results have been selected mainly by the optimal version than have been the total surface area of the ellipse holes is 1060 cm², it consisted of two different types of diameter outside diameter 145 mm and internal diameter 130 mm.

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PROBLEMS IN THE EMOTIONAL SPHERE IN PATIENTS WITH SOMATIC DISEASE AND THEIR CORRECTION

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ABSTRACT

This article describes the psychological problems in patients with somatic disease, the analysis of diagnostic methods performed with them, the aspects that are important in the psychocorrection program in overcoming stressful, negative emotions in them.

The study of psychological reactions and emotional experiences in a patient during rehabilitation is important in providing them with psychological practical assistance. The study involved 36 middle-aged patients and healthy people treated at the Khorezm Regional TB Dispensary. In order to identify emotional experiences, John R. Otterbacher, David C. Munz's "Guilt Awareness Index" method and D. Amirkhan's "Study of coping strategies for overcoming life problems" method were used.

The results of the study showed that patients had a high level of guilt over healthy people. For this reason, no coping strategies have been identified as a result of coping strategies to address their life problems. Conversely, in healthy people, moderate guilt and coping strategies for overcoming life problems have been identified as scales for avoiding the problem and expecting help from others in finding a solution to the problem. The analysis of this study shows that the patient's psyche is characterized by a stronger development of willpower quality than that of healthy individuals.

KEY WORDS: *depression, guilt, stress, tuberculosis, cancer patient, internal picture of the disease, coping strategy, art therapy, psychocorrection program.*

INTRODUCTION

The World Health Organization defines health as related to physiological, mental, and social factors. Today, the most common cases are psychosomatic disorders associated with social relationships, resulting from mental stress.

In 1818, the German physician Heinrot had argued in his opinion that the root of any organic

disease was associated with disturbances in psychological activity. One of the most important aspects of patient rehabilitation is that the principles proposed by experts at different stages of society development are changing, and the main idea in it is the dignity of the individual and his adaptation to society. In the large-scale rehabilitation process,



attention to patient psychology emerges as a key issue.

According to the Swiss psychiatrist, psychologist Elizabeth Kübler-Ross, the patient's psychological reactions are divided into 5 stages - denial, nervousness, bargaining, depression, acceptance. [15]

The denial phase of the disease is a very common condition. For example, if we analyze the emotional processes in a person diagnosed with tuberculosis, then the questions "Why", "Why", "How" arise, and the diagnosis wants to be wrong, there is fear and stress. Tuberculosis is one of the most common, socially conditioned diseases in the world and as a severe somatic disease it is observed with certain neuropsychiatric disorders affecting the patient's personality. In many cases, patients often claim to be healthy and refuse treatment as a result of not believing the diagnosis. Most people today are aware of this disease, even knowing or hearing that there is a cure for it. Nevertheless, psychological conditions and changes in cognitive processes in patients treated for tuberculosis are characterized by their severity. Because of the long duration of treatment processes in this disease, it makes it difficult for the patient to receive a diagnosis of the disease, as people engaged in certain types of activities have an increased risk of losing his job. During this period, he remains in need of emotional support.

According to the expression of emotional reactions, the manifestations of aggression in most cases in severe forms of MDR-TB (multidrug-resistant tuberculosis) and XDR-TB (Extensively drug-resistant tuberculosis), in addition to the above cases, the disease is more severe, depending on the patient's condition, more severe psychological disorders. will pass. Because he is still struggling to make a diagnosis, the emotions in him are "why he is, he doesn't deserve this," trying to hide his health condition. Decreased self-esteem in patients, as well as a state of alienation from loved ones, can lead to mental problems as well as problems in the patient's medication intake. According to phthisiologists, vomiting is 13%, nausea is 16.8%, depression is 11%, arthralgia is 9%, allergic reactions are 7.4%, hepatitis is 5.5%, and sleep disorders are 5%. , 2%, hearing loss 4.8, diarrhea 4%, dizziness 4%. Sometimes psychoses - behavioral changes, visual, auditory hallucinations - can also be observed as a result of side effects of drugs and poor psychological condition of the patient. During this period, the patient feels that others cannot understand him.

In a patient with tuberculosis during the commercial phase, his condition appears to have improved somewhat, with changes in his condition. The tendency to share their feelings with others, to talk, to feel that they are getting better, to pay a little attention to those around them, to show them a sense

of caring, but this situation seems to be temporary. Some patients find the strength to overcome their illness through a sense of gratitude, to be strong-willed, to get help from those around them. In the vast majority of cases, various changes in the patients around them, negative emotions, the transition to the stage of depression, depending on the level of information received.

Depressive states in a patient with tuberculosis affect the mental and social state, loss of interest in the environment, decreased activity, psychomotor inhibition may be observed. Appetite decreases, guilt increases, concentration becomes difficult, and sometimes attempts are made to commit assassinations.

The most difficult period in this period is often the feeling of guilt in women. Because during this period, a woman is away from her family, her child, she suffers from not fulfilling her duty to them.

The Russian scientist I.A. Belik found that the feeling of guilt in women is higher than in men. It has also been identified by I.A. Belik. The scientist also points out that in older people (30-55 years old), guilt is associated with their limitations, missed opportunities, and the loss of loved ones. And in young people (19-23 years old) it has to do with hurting other people or realizing that they can't live up to the expectations of people who are important to them. [6] The researcher highlighted aspects of guilt related to age and gender characteristics.

According to researchers such as Berg, Whitkin, and Barling, the problem of guilt in married working women has now become the focus of Western psychologists. This is the result of an internal conflict in the person related to the woman's desire to fit into the roles of both a good wife and a qualified professional. Realizing this, a woman feels guilty in front of her children, her husband, her boss in the office, which can eventually lead to psychosomatic symptoms. [3] This problem is a common condition among women all over the world today and manifests itself as a consequence of the intolerance between a person's needs and opportunities.

Feelings of guilt in front of children (especially when a woman returns to work after giving birth and feels as if she is leaving, or not being able to see her child during treatment, the risk of contracting the disease) create certain patterns in her relationship with her child, often highly compensatory behavior. brings L. Hoffman calls it "substitute love."

A sense of guilt deprives the mother-to-be of the effectiveness of her activities. K. Borman et al. Argue that when a woman begins to blame herself for not fully fulfilling her motherly duties, her communication with her child is fraught with many "unexplained" outbursts of anger. [3] At the same time, more often the needs of the child are not met,



and the mother's negative assessment of her behavior leads to conflict situations.

MATERIALS AND METHODS

According to Elizabeth Kübler Ross theory, in order to study the psychological reactions and Research results:

Feelings of guilt	Sick person	A healthy person		
	100 % a high degree of guilt	High level	Intermediate level	Lower level
		56.25 %	25 %	18.75 %

emotional experiences in a patient in 36 middle-aged patients and healthy individuals. The "Guilt Awareness Index" method developed by John R. Otterbacher, David C. Munz was conducted.

The study showed that the patient had a high level of guilt and that the same result was recorded in 100% of our subjects. In a healthy person, this figure was of three types: 56.25% high, 25% moderate, and 18.75% low. The high rate in patients serves as further evidence of regressive views of guilt.

This method is especially useful in situations where it is necessary to monitor the client's response to their own guilt in response to specific events or situations, and which may occur when working with family therapy.

When it comes to the condition of sick people, it is extremely important to have the support, psychological, emotional and spiritual support of relatives and family members even when they are able to accept the diagnosis. This factor is especially relevant for the formation of stable adherence to treatment. In the majority of patients treated for a long time, forced social loneliness, negative emotions are formed due to the disgusting attitude of those around them towards their illness, and their commitment to treatment decreases.

The patient has a tendency to hysterical reactions under stress, increased levels of depression, anxiety, aggression and hostility, interpersonal sensitivity, decreased ability to work, mood swings, fears, difficulties in communicating with others, impaired social flexibility, antisocial tendencies, as a result of psychological disorders in the patient. the rigidity of mental processes, the problems associated with maintaining one's self-esteem among people who are important to him.

Such specific personality traits can complicate the scope of communication with patients and lead to additional stress, disturbances in the previously weakened psychological adaptation system. Psychological disorders are specific to individuals who are ill for the first time and have a chronic illness.

It should be noted that all of these factors affect the psyche. One of the important concepts in the approach to the patient is the concept of "inner view of the disease" given by R.A. Luria " the totality of a person's ideas about his illness, the result of creative activity that the patient makes on the way to realizing his illness. This phenomenon represents an

assessment of the disease and subjective health, which can influence the further understanding of one's condition during the course of the disease." [11]

While emotional and intellectual status were taken into account in the assessment of the disease, the process was then studied in 4 levels.

- A set of sensory degree-painful sensations. All of these are emotions that arise in connection with functional changes.

- Emotional level — related to the disease experience and its consequences. These are the different emotions that occur in connection with the disease.

- knowledge of the intellectual (cognitive) degree-disease and its real assessment. In this case, the patient's experience is important, which determines the processing of the fact of the disease and the prediction of the consequences of the disease.

- motivational (behavioral) degree. Forming a certain attitude towards the disease, making lifestyle changes and healing activities.

The internal picture of the disease usually also serves as a holistic formation, and its formation is influenced by various factors: the nature of the disease, its severity, development, personality traits of the patient in the pre-disease period, and others. [11]

When we analyze some of the patient's attitudes toward the disease and some of the personal qualities that affect the communication process, some assume responsibility for the problems that occur with them, while others explain the cause by other circumstances. Some categories are well aware of their disease, pay close attention to the treatment process, can easily form adherence to medications, and follow prophylactic procedures to prevent the possibility of recurrence after overcoming the disease. In some, the opposite may be true. In the psyche of a patient treated with chronic diseases are observed insecurity, low self-esteem, anxiety, high emotionality, weak logical thinking, low level of volitional qualities, sluggish mental activity, fatigue, stress, relaxation in his psychophysical state. There are also patients with personal anxiety who are more likely to experience diffuse or meaningless anxiety in general. It manifests itself as helplessness, lack of



self-confidence, weakness in the face of external factors.

All people strive for inner stability, harmony, physical and mental health. But in realizing these aspirations in life, one can often encounter complex situations and problems alone. Circumstances in which a person is unable to cope independently with complex problems encountered in the course of life can be observed and he may need psychological help. Everyone experiences tension and stress. This is a condition that occurs at different times depending on the situation, both in the patient's condition and in

Test results

Scales of the method of studying coping strategies for overcoming life problems	Troubleshooting scale	The scale of striving for social support	Problem avoidance scale
In patients	81.25 %	18.75 %	-
In healthy people	81.25 %	12.5 %	6.25 %

In a problem-solving strategy, a person seeks an effective solution to a problem using the internal personal resources available to him or her. The same result was found in both groups of subjects on this scale. The results obtained on the scale of striving for social support show that the patient personally feels more in need of attention and support from relatives than a healthy person. The results of the problem-avoidance scale gave the researcher an astonishingly unusual appearance. According to him, no strategy to avoid the problem in the patient's personality has been identified. On the contrary, it has been found that avoidance of the problem is observed, albeit to a lesser extent, among healthy people. All three strategies are important for the patient's individual treatment process.

Conclusion

We learned that the following should be considered when organizing a psychocorrection program to help patients cope with stressful, negative emotions.

1. Diagnosis of the patient's psychological condition in the first stage.

At the same time, in the course of interviews with patients undergoing treatment for tuberculosis and oncological diseases, it was found that in general, they suffer more from the feeling of unforgivability, that the causes of the disease are caused by something or someone. In the process, it was identified the need to carry out mental catharsis with them, the need to share their emotional experiences, the importance of being able to give him sympathy. Positive results were observed in the practice of training that develops self-awareness in the patient with closed conditions.

2. The stage of self-awareness.

the healthy person's condition. Man acts in a certain direction and in a specific way to eliminate the tensions in himself. A set of methods unique to each person to deal with situations that cause stressful emotional tension is his or her coping strategy, which can provide information about the internal resources that allow you to solve problems.

In our study, D. Amirkhan used a modified version of the method "Study of coping strategies for overcoming life problems" modified by V.M. Yaltonsky and N.A. Sirota. [1]

At this stage, positive results were obtained when conducting operations with the patient "going back to childhood", "who am I?", Training, "gratitude for body parts". If patients are suffering from "unforgiveness, guilt", the reasons for these events are discussed from the patient's point of view, giving him the opportunity to observe their relationship from the outside. We think this will be more effective if it is usually done through group support sessions.

3. Effective use of forms of art therapy according to the psychological state of the patient.

The possibilities of using art therapy with patients, especially the method of isotherapy, are wider. In particular, it was observed that patients treated for tuberculosis were more likely to resort to picture and play therapy, while oncology patients were more likely to choose picture therapy, sand therapy, and story therapy.

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ECOTURISTIC IN UZBEKISTAN AND ITS ROLE IN THE DEVELOPMENT OF TOURISM

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ABSTRACT

This article analyzes and describes ecotourism landscapes and their territorial features, the importance of various historical monuments and objects created by nature in tourism.

KEYWORDS: *historical, architecture, religious, natural monuments and their importance in tourism.*

DISCUSSION

A new turning point in the history of our country is characterized by the content and essence of radical reforms in all areas, as well as the definition of future priorities of socio-economic development. Therefore, the development and further development of tourism sector, effective use of existing opportunities, improvement of tourism and mechanisms to ensure its sustainable operation, the creation of a system of "National Tourism Model of Uzbekistan" set the ultimate goal of the tourism of the country. Accelerated development of tourism in Uzbekistan, more complete and effective use of existing tourism opportunities, regional organization and development of cultural and historical tourism, ecotourism, educational, ethnographic, gastronomic, sports, health (recreational tourism), business, rural and agritourism, children, adolescents and youth tourism, family tourism are becoming priority for the industry today. Therefore, the draft decree of the President of Uzbekistan "On the action strategy for further development of the Republic of Uzbekistan" was discussed. A clear example of this is the fact that the document addresses the issue of effective development of the tourism sector in the five priority plans for the development of Uzbekistan for 2017-2021 (2) Therefore, the Decree of the President "On

measures to ensure the accelerated development of the tourism industry" directly envisages bringing the industry to a new stage of complex development (1). However, it is no secret that its share in the economy is low due to insufficient use of tourism opportunities in the regions. Moreover, the concept of gradual development of tourism in the perspective programs of socio-economic development of districts is not fully developed. It is possible to turn it into an important part of the economy only through a comprehensive study of tourism at the level of small regions.

It is known that there are more than 7,000 historical and architectural monuments in our country. However, a promising model for the development of national and international tourism in the regions has not been created. In the territory of Samarkand region, there are 1105 archeological, 60270 architectural, 37 attractions, 18 monumental, 21 memorial, a total of 1851 objects of material and spiritual heritage (3). The effective use of existing facilities for tourism purposes is not satisfying. These facilities do not serve for tourism activities due to the lack of infrastructure, lack of attention to the industry and other reasons. Many natural monuments are considered to be forage, cattle grazing for use in farm activities and neglected. In particular, there is a cave



inhabited by people in the Middle Stone Age, located in Bulbulzorsoy on the northern slope of Mount Qoratepa, which is a unique monument of nature. The existence of primitive people in the Middle Stone Age in the cave was first identified by Professor of the Department of Archeology of SamSU D.N. Lev. That is why this cave in the Omonkuton river is called Lev cave. Today, the environment of the cave is enclosed by fences that are inaccessible to people, and has been turned into pasture and agricultural land. This place attracts tourists with its mountain air, beauty of nature, archeological finds and the ancient way (Takhtikoracha). Extensive use of unique natural monuments in tourism is very effective. Man is in constant contact with nature, and all the time its mysteries attract him like a magnet. This is probably why it is natural for man to be always interested in the study of events and processes that take place in nature. At a time when the relationship between nature and society is becoming more serious, the most effective way to use it wisely is to develop the tourism industry. Therefore, unique monuments are widely used in European countries for tourism purposes. The term "unique monuments of nature" was also first introduced to science in the XIX century by the famous German traveler, geographer and naturalist Alexander Humboldt.

In Central Asia A.A. Brodsky compiled a list of natural monuments in 1923. It included various objects such as waterfalls, lakes, forests, individual rare trees, rocks, bird nests and other natural objects and monuments (5). The magazine of Nature Conservation, published in 1948, describes the sources included in the category of natural monuments, for example centuries-old forests, inter-desert forests, desert zones, caves, geologically stripped areas, waterfalls, rocks, ravines, lakes and forest parks.

It should be noted that not all objects created by nature are unique monuments of nature. The eruption of rocks and cuttings that have been discovered during geological epochs and that have been exposed to the effects of internal and external natural forces or man-made engineering activities, fossils of ancient plants and animals, traces, scenic waterfalls, caves and their magnificent structures, lakes, rivers and other natural monuments are considered as unique monuments of nature.

One of the important features of unique natural monuments is that they have scientific and geological historical significance. In addition to natural factors (geomorphological, archaeological), a number of other factors are involved in the formation of many natural monuments. These factors are closely related to each other. For example, important geological, geomorphological and archeological monuments in Uzbekistan and other regions are examples of this. The limestone rocks near the

village of Khojakent in Tashkent region are also geological and geomorphological monuments, where the workshops of our ancient ancestors and the paintings on the walls of the cave are preserved. Another example of such a group of monuments is the Zarautsoy cave, formed in the limestone of the Kohitang ridge in southern Uzbekistan, depicting a number of animals, insects and game scenes painted by primitive people 20-30 thousand years ago (with natural paint).

Unique landscapes found in nature under the influence of water, wind and sun attract people. These natural monuments do not fail to amaze tourists. Consequently, the magnificent paintings kept in art museums are viewed with pleasure, as the skill of the artists who created them will undoubtedly serve to accelerate the flow of ecotourism. In fact, nature itself is a "powerful artist." Among its long geological years are mountain peaks, beautiful valleys, deep ravines, huge waterfalls, caves, rocks, hot springs and more. These include mountain peaks, beautiful valleys, deep ravines, huge waterfalls, caves, rocks, hot springs appeared during its long geological years.

Watching these unique gifts of nature has always attracted ecotourists. For example, there are 6 waterfalls in a river flowing through a cave in the Balkans, and 8 waterfalls in 3 rivers flowing through a mammoth cave in North America. The height of the waterfall formed by the river inside the cave Bkije in France is more than 30 m. However, such magnificent caves are common in our country. In particular, the caves of the Kirktav plateau on the Chaklikalon mountain in the Zarafshan ridge, the Amir Temur caves on the southern slope of the Qoratepa mountain are of great importance in the development of "spelotourism", a special type of tourism in our country.

There are thousands of miraculous and amazing places in the regions of our country. But they are not used for international tourism purposes. For example, wind-blown stone gates and mushroom-shaped rocks have emerged in the Giarfeh Valley of Egypt, in Saxony, Switzerland. In the Colorado Valley of North America, a variety of rock formations have sprung up in what is known as the Garden of the Gods, the strangest of which are the vibrating rocks. Tandil stone in Argentina, which moves under the influence of winds, is one of the busiest places for tourists. The Sangijumon Stone located on the southern slope of Mount Nurata does not lag behind them with its strangeness. The Zaamin Mountain-Forest State Reserve is located in a picturesque place where Turkestan and Morguzar mountains meet. In the reserve, in all seasons, summer and winter, pine trees grow, which stand out from the surrounding area with their lush greenery. It is as if nature has bestowed all its beauty here. As you walk along the lonely path between the pine



forests, you will see a magnificent landscape, that is, natural monuments known among the people as "Forty girls fortress", "Brides carrying baskets", "Groom stone", "Forty beauties". The area where these natural monuments are formed is called the Guralash and Zaamin massifs (2000-3200 m above sea level) and is located in the valleys of the Zaamin and Sangzor rivers. On the right bank of the Kyzyl-Turgay River, at an altitude of 300-700 m above its core, and one of the rare monuments of nature, the "Forty girls Fortress" (3-4 hectares) occupies a special place in this area. To the south-east of the castle, the image of a girl stands as a sculpture made by a skilled sculptor (height 12 m, waist diameter 1 m, diameter of the skirt touching the ground about 2 m) (6).

Another unique natural monument of Morguzar Mountain is called "Groom stone". It is located in the lower reaches of the Guralash River, at an altitude of 1000-1900 m above sea level. Here, low and medium altitude mountains, hills, wide river valleys and beautiful oases combine to form a beautiful landscape. There are wide (200-800 m) terraces in the valleys. According to its geological structure, the area is mainly composed of Quaternary soft porous and distant rocks. Along with sand and gravel in the river cores, there are rocks formed as a result of rain and floods. However, hard rock (limestone, dolomites, marble) are not widespread. "Groom stone" has a columnar shape and is located on the second terrace of the right bank of the Guralash river, 4-5 km east of the village of Karashakshak. Its height and diameter are about 10 meters. The climate of the area where "Groom stone" is located is mild, the annual rainfall is 400-500 mm, the average annual temperature is 10-11 degrees.

Mount Koytash in the North Nurata mountain range of Jizzakh region (the highest point is Tengizlitov, 1905 m) is also one of the legendary places in Uzbekistan. A closer look at the pile of rocks here reminds me of a flock of sheep grazing.

Rare rocks can also be included in the list of natural monuments. In the territory of Khojakent village of Tashkent region, on the left bank of the Chirchik river, a beautiful view of the rock can be seen from afar. The rock is composed of limestone of the Coal Age (about 290-350 million years ago) and has risen to the surface as a result of new tectonic movements. As a result of the development of karst processes, more than 20 caves of different sizes have appeared here. The settlement of primitive people who lived in the Stone Age was found in one of the caves. On the walls of this cave are carved paintings by them.

Another unique rock with a beautiful view is the rock at the "Temur Gate" in the middle reaches of the Sangzor River in the Jizzakh region. It was also formed from limestone during the Coal Age. The

amazing and mysterious view of the rock is such that it attracts the attention of every traveler passing by.

According to A. Hoshimov, "Temur's Gate" has long been known. According to the ancient Greek scholar Arrian, Alexander the Great marched towards Tanais (Syrdarya) after conquering the Marokand, the capital of Sogdiana. During this march, more than 30,000 of Alexander's troops passed through this gate, because this gate was very convenient to go east (6).

The mountains found in the plains of Central Asia (Karatov, Nuratag, Qoratepa) rise from 500-600 meters to 1000-1200 meters, in the Tianshan Mountains from 2000-2500 meters to 4000 meters, in the Pamir Mountains from 4000-4600 meters. Local people call these uprisings "boxes", "surfaces", "platforms". Their surface is flat or slightly wavy, slopes are intersected mainly by valleys of ravine rivers, and a steep cliff rises from the bank.

It is a pity that in the mountainous conditions of Uzbekistan, which is densely and deeply intersected by rivers, there is such a flat surface, which is used only as pasture. In fact, these landscapes can be turned into a place that provides an interesting holiday for tourists. Also, several surfaces located on the south-eastern slopes of the Pskom ridge are called "large box", "small box". Such flat areas also exist in Jizzakh region. B.Bahritdinov and A.Saidov called them "Morguzar Supa". "Supa" is one of the most beautiful and peaceful places located in the north-eastern part of Morguzar mountain, in the territory of Zaamin mountain-forest reserve. Supa is much higher than the areas around it (2000-2500 m above sea level), the surface of which is almost flat, the eastern border of which is the Kashkasuv Basin, the western border of which is along the meridian of the Khatirchi Pass. The surface is intersected by many streams. The main wealth and beauty of Supa is its geographical location, climate, flora and fauna. The territory is inhabited by rare and endangered animals (mountain goat, mountain sheep, white clawed bear, many storks and birds of prey). Holiday homes and medical institutions have been established here.

In the northwestern part of the South Nurata Mountains in the Aktag Range (Samarkand and Navoi regions) there is a rock called "Sangijumon", which means "vibrating stone". The rock weighs about 225-235 tons, has a circumference of 19 m, a diameter of 9 m and a height of about 6 m. Vibrating rocks such as Sangijumon are known to be found in the middle of the Zarafshon ridge, but they are also found elsewhere on the globe (for example, near Buenos Aires, Argentina). Such places serve the development of ecotourism.

Stalactites, stalagmites, and stalagnates are found in most underground caves on Earth. Their size and age also vary. The stalagmites inside some underground towers in the Czech Republic are 0.5 m



in diameter and several meters high. their age was found to be more than 1250 years. The 18.9-meter-high and 4.9-meter-diameter stalagmite in the Carlsbad Underground in the United States is known to be 60,000 years old. This tower is 21 meters high and 5 meters in diameter, with a large stalagmite. The height of stalactites in the caves formed in the Margare Mountains on the border of Italy and France reaches 50-100 meters. There are more than 2,000 stalagmites in Katerlach Cave in Austria. In some underground towers, the air temperature is so low that the dripping water turns to ice without evaporating. M. Abdujabborov, a cave scientist from SamSU, found such an ice cave in the Zarafshan mountains and called it "Nuriddin" (3). Hazrati David Cave in the village of Aksay, located in the Ohalik mountain range, is used in local tourism as a favorite destination for thousands of pilgrims from all over the country. But the infrastructure here is not at the level of demand. Mihai Bulay, Professor of the Faculty of Geography and Geology, Alexandra Cuza University, Romania, and B. Meliev, Researcher of the Faculty of Geography and Ecology, SamSU, jointly studied the object and found that if used in the same way in the future, the ecosystem of the region may lose its attractiveness in the near future as a result of anthropogenic impact. To prevent this, it will be necessary to create transport accommodation, irregular food outlets and other infrastructure, taking into account the influx of domestic and foreign tourists.

The presence of ice caves in the hot climate of Central Asia is surprising. At an altitude of 2,500 meters above sea level, almost 1,000 meters below the snow line, another glacial underground tower in Central Asia is the Makshevav Cave, located in the upper reaches of the Zarafshan Valley in Tajikistan. The total length of this cave is 45 meters. Even in summer, snow and ice remain in the cave. It has a complex structure and consists of several corridors and halls. The floors and walls of the halls are covered with ice. According to M. Hoshimov, who inspected the cave, the main reason for the formation of ice here is that it is located above sea level. Indeed, the winter here lasts a long time, the main part of the precipitation falls in the form of snow, the air temperature inside the cave is always low. This is a unique microclimate that is convenient to the development of cave ecotourism (6).

In general, the use of such unique monuments of nature for tourism purposes is of great importance. In our opinion, in the future it will be necessary to organize geographical and tourist expeditions and develop tourist routes on the basis of a scientifically based plan for such unique objects. Since rare places of nature are usually located in a slightly remote area from humanity, we believe that it is necessary to establish ecotourism routes with a

scientific approach to their use and use them in international and domestic tourism.

In conclusion, it should be noted that in order to use the unique natural monuments for tourism, it is necessary to pay attention to the following issues:

- Development of scientific bases for the use of unique natural monuments in tourism in the development of the "National Model of Tourism in Uzbekistan";
- revision and grouping of the list of unique monuments in the regions, cadastre and inclusion of the most unique and attractive objects in ecotourism in tourist routes;
- conducting a tourist campaign in our country in the nomination "the most unique and antique natural monument";
- taking into account the study of tourism potential in rural areas in the development of long-term plans for socio-economic development of districts.

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BIRTH TRAUMATISM OF THE BIRTH CANAL, AS A RISK FACTOR FOR THE DEVELOPMENT OF CERVICAL PATHOLOGY

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ABSTRACT

Obstetric injuries of the cervix are the background condition leading to cervical pathologies such as ectropion, atypical leukoplakia, cervical intraepithelial neoplasia, which represent a high risk of cervical cancer. That remains relevant for further study of the factors leading to cervical trauma during childbirth, for the prevention of background diseases leading to oncological transformations of the cervical canal.

KEY WORDS: *cervix, birth trauma, ectropion, precancerous conditions: atypical leukoplakia, cervical intraepithelial neoplasia.*

DISCUSSION

Cervical injuries acquired during childbirth play an important role in the development of most benign and precancerous diseases of the cervix. The causes of cervical injuries vary, and mechanical causes include large fetuses, delayed births, fetal head miscarriage, scarring of the soft tissues of the birth canal, and inflammatory diseases [3, 12, 31, 34].

Cervical injuries are most often observed in women of first birth and account for 17–28%, according to a number of authors [22, 9, 12]. Cervical rupture is twice as common in first-born women over 30 years of age as in young women [12, 3, 19, 26, 32]. Some authors explain these complications by changes in the colloidal structure of cervical tissue, i.e., fibrous tissue growth and a decrease in muscle cell volume, resulting in decreased cervical elongation and increased stiffness [3, 10, 19, 21, 24, 27].

The risk of cervical rupture during childbirth is increased in severe births, as well as in prolonged births, anomalies of childbirth [3, 6, 10, 33, 34]. Risk factors for cervical rupture in early childbirth include anomalies of childbirth, amniotomy, large fetus, inflammatory diseases, history of cervical diathermocoagulation, women over 30 years of age, low mobility during pregnancy [7,8, 27, 28].

Dehydration is also an important factor in the observation of cervical rupture. An increase in

dehydration time of more than 24 hours doubles the risk of cervical rupture. This is mainly due to the loss of water, a decrease in the volume of the uterine cavity and an increase in cervical retraction, a pressure effect on the internal taste, which is not the anterior part of the fetus [2, 18].

Some literature has provided information on the role of extragenital diseases in cervical tears associated with childbirth. For example, anemia has been shown to decrease the blood supply to the cervix. In cardiac pathologies, early cervical maturation and severe complications of labor have been reported [3, 2, 19, 27].

There are 3 levels of cervical rupture according to the size and depth of the injury.

- I degree - tearing is observed on one or both sides, up to 2 cm in length;

- II degree - the length of the tear exceeds 2 cm and does not reach the dome of the vagina;

- Level III - the tear reaches the vagina and extends to the upper part of the vagina.

It is also divided into uncomplicated and complicated cervical tears:

1. Uncomplicated cervical tears are grade I and II tears.

2. Complicated cervical tears:

- Rupture of the vagina;

- Rupture of the upper part of the vagina;

- The tear rises along the cervical canal and reaches the cervix;



- rupture occupies the peritoneum or parameter [3].

A number of technical errors are made when providing primary surgical care to women who have experienced cervical rupture during surgery. According to well-known authors, in 25% of cases cervical rupture is not sutured at all, in 40-60% of cases postpartum cervical rupture is observed as a result of inadequate suturing [4,5,6,25]. When a cervical tear is sutured, the main focus is on achieving a hemostatic result, as the boundaries of the injured cervix become rough and lead to scar formation. In cervical tears of less than 1 cm in size, the cervix is usually not sutured unless active bleeding is observed [6,13,14,19]. Impairment of architectonics in cervical rupture leads to injury of cervical connective tissue muscle fibers, nerve endings, tissue ganglia, disruption of cervical tissue trophism, abnormal regeneration process, prolonged prolonged inflammatory process [23, 24, 27, 34]. Secondary recovery of cervical obstetric injuries is an important factor in the development of cervical cancer, leading to scarring, ectropion formation, precancerous conditions (atypical leukoplakia, cervical intraepithelial neoplasia) [12, 27, 28, 29]. There are data on the development of cervical dysplasia against the background of scarring in more than 40% of women [15,16,20,31]. Among the background diseases, cervical scarring has a special place, according to a number of authors, it is about 15.3-54.9%, and among women of reproductive age can reach up to 70%. In scarring deformities of the cervix, disruption of the anatomical integrity of the cervical canal leads to loss of mucus production, decreased barrier function, resulting in the development of infectious factors and the development of acute and chronic inflammatory diseases.

F.F. According to Badretdinova (2014), cervical scar deformities are divided into 4 levels:

- Scarring deformity grade I - single or multiple cervical old tears up to 2 cm in length. The cervical canal is partially preserved, conical in shape. Overturning of the lower part of the cervical canal.

- Stage II scarring is an old tear of the cervix that is unilateral or bilateral, reaching to the vagina. The integrity of the cervical canal is compromised, the endocervic vagina collapses, hypertrophy of one of the cervical lips.

Stage III scarring - old tears in the upper part of the vaginal dome, accompanied by asymmetric hypertrophy of one of the cervical lips, dystopia, dysplasia.

- Stage IV scarring - old tears in the upper part of the vagina, with a lack of pelvic floor [4].

Surgical-excision and destructive methods are used in the treatment of cervical pathologies developed against the background of cervical scar deformity [30,39,45,46]. The first group of methods

includes acute and laser concision, loop electroencephalography, combined cervical concussion, resection of tissue with scarring, and removal of almost external lesions.

The following surgical procedures are often used in clinical practice:

- 1) Cervical ponasimon amputation on Schroeder;
- 2) Conical amputation of the cervix on Sturmendorf;
- 3) Upper amputation of the cervix;
- 4) Emmeta operation;
- 5) Cervical plastic surgery on Eltsov-Strelkov.

Among the practices of Eltsov-Strelkov, cervical plastic surgery can be applied and achieved success in all types of cervical scar deformities while maintaining cervical length [1, 2, 11, 17].

The second group of methods (destructive or ablation) includes cryodestruction, laser vaporization, cervical electrocoagulation [30]. The use of ablation methods in cervical scar deformities can lead to exacerbation of anatomical and physiological disorders.

One of the key moments in the treatment of cervical tears is the timely restoration of the normal anatomical and functional structure of the cervix in the postpartum period. To reduce and prevent cervical obstetric injuries during childbirth, especially in first-time mothers, requires the development of a systematic, multi-step approach using new and modern technologies.

Preventive measures to prevent cervical rupture include:

- Pregnancy planning and preparation for pregnancy (detection and treatment of chronic diseases before pregnancy, prevention of unwanted pregnancies).
- Rational nutrition of pregnant women (avoidance of fatty, fried, hot, spicy foods).
- Avoidance of excessive physical and psycho-emotional stress.
- Rational delivery: assessment of contraindications and contraindications to natural childbirth or cesarean section, timely analgesia, adequate use of uterotonics, timely detection of cervical stenosis (prolonged cervical compression between the fetal head and pelvic bones) caution and instruction in the use of obstetric procedures (obstetric clamps, fetal vacuum-extraction).

Thus, obstetric injuries of the cervix are a high risk factor in the development of cervical cancer, leading to background conditions of the cervix, such as ectropion, atypical leukoplakia, cervical intrepithelial neoplasia. Therefore, the study of factors leading to cervical injuries during childbirth, as well as the prevention of background diseases leading to oncological changes in the cervical canal, remains relevant.

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IMPLEMENTATION OF THE ERP SYSTEM IN LARGE COMPANIES IN ORDER TO INCREASE PRODUCTIVITY

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ABSTRACT

Nowadays, high-tech development, which has a positive impact on existing business processes by automating and optimizing them, thus accelerating the execution of business processes and making them more flexible depending on the policy of an individual organization, more organizations see the need to implement an ERP system to increase their productivity and remain competitive in the market. This article describes facts, researches and conclusions based on publications by foreign specialists. This article describes the advantages of using an ERP system, supported by examples of successful implementation of large companies, as well as the problems that organizations usually face when implementing the system and employees when switching from a traditional way of working to using ERP. Despite the difficulties and problems faced by organizations in implementing the ERP system, the successful implementation of the project gives users such advantages as fast collection of up-to-date information, quick decision-making, improved customer interaction and improved product quality.

KEYWORDS: ERP system, integration, implementation, implementation, performance, users, management, specialists, customers

INTRODUCTION

ERP is an integrated, customizable, software system that processes most enterprise system requirements in all functional areas, such as accounting, human resources, finance, sales, marketing and manufacturing. The ERP system allows to create an integrated information environment to automate the planning, accounting, control and analysis of all major business operations of the enterprise. They are mainly used by large companies, which include a wide range of functions and whose enterprises are located in different geographical locations. Since planning and control of internal resources is carried out efficiently and productively, ERP gives an advantage among competitors in the market.

ERP systems are based on the principle of creating a single data storage containing all corporate business information: planned and financial information, production data, HR data, etc. The presence of a single corporate repository allows you to easily transfer data between departments and employees of the enterprise, as well as ensures simultaneous availability of information for any number of employees of the enterprise with appropriate authority. A single corporate storage reduces the cost of information flow between individual units of the enterprise and eliminates the difficulties that may arise if necessary, to share up-to-date and reliable data with the relevant units of the enterprise. This will help reduce the time spent collecting data and avoid duplication of data. With



up-to-date and correct information, ERP will help managers make decisions quickly and correctly, as well as improve communication between business process participants. That's why ERP is called a cross-functional system because it combines business processes from different areas of the organization into one system, which contributes to quick decision-making.

A BRIEF HISTORY OF ERP

The ERP system began its development in the 1960s, when the ROP (Reorder Point System) was developed, which is used for production planning and control. Later, in the late 1960s, the predecessor of ERP - MRP (Material Requirements Planning) was developed, which was used to plan complex production processes, and was suitable for implementing a target market strategy thanks to integration between forecasting, basic production planning, procurement and shop control. In the 1980s, an improved version of MRP (MRP II) was introduced, which optimized production processes by synchronizing materials with production requirements. MRP II systems have combined financial accounting and management systems, as well as production and material flow management systems. Despite this, the MRP II system had its drawbacks (for example, a lack of order control, production plans, etc.) that prompted the development of a fully integrated solution - ERP. ERP was an improved version of MRP II, which also included relational database management, a graphical user interface, and a client-server architecture. This allowed companies, for example, to set product prices and immediately prepare a financial report. ERP systems were in increasing demand in the market, as in a highly competitive, constantly changing business environment this helped companies make the right decisions on time thanks to the integration and optimization of business processes. The current ERP systems are more integrated systems. They integrate the production process with the supply chain process throughout the organization - they control processes from the delivery stage, then at the production stage and ending at the consumer.

EXAMPLES OF SUCCESSFUL IMPLEMENTATION OF ERP

As mentioned above, the basis of ERP is the integration of business processes into a single system. The lack of a single control platform led to stagnation in the work, which negatively affected the profitability of the organization. For example, one of the world's largest manufacturers of Boeing aircraft, space and military equipment, whose production depends on hundreds of external and internal

suppliers of millions of components necessary for the design of airplanes. In order to control the assembly of components into appropriate airplanes consistently and correctly, Boeing used the 400 systems they developed, but all these systems were not combined into a single platform, which caused the data to be different in individual systems, and the assembly processes were not synchronized. This caused the components to be delivered late, which slowed down the production of airplanes. In 1997, Boeing faced unprecedented demand for its aircraft, prompting them to implement an ERP system.

ERP systems also improve communication and data exchange between enterprise members, which significantly increases the productivity and speed of business processes. An up-of-firming example is the American multinational company Cisco Systems. After the implementation of the ERP system, Cisco Systems became a leader in the global network industry, by using electronic communication to build interactive relationships with its customers, business partners, suppliers and employees. As a result, the company doubled every year and earned hundreds of millions of dollars through savings and increased revenues. Another example is the world's largest software vendor, Autodesk.

RESEARCH CONDUCTED AMONG LARGE OIL AND GAS COMPANIES

ERP implementation will affect different industries differently, but in the oil and gas industry ERP occupies a special place in the standardization of business processes. Therefore, a study was conducted that demonstrated how the introduction of ERP affected the productivity of oil and gas plants. The study consisted of comparing performance indicators (which will be given below) between enterprises that have implemented ERP and have not implemented ERP, and how these indicators have changed over the course of 15 years.

Since the oil and gas industry has many departments that perform different functions and geographically scattered enterprises, as well as complex supply chain requirements, standardization of business processes becomes one of the main ways to solve the above difficulties, as well as gives a competitive advantage and flexibility, which allows enterprises to enter a new market. Due to ERP systems, managers have access to up-to-date information about external events and internal resources, which will allow managers to make the right and optimal solutions.

As mentioned above, a comparison was made between oil and gas plants for 5 performance indicators, namely:

- Profitability ratio - the ratio of sales income to its expenses for a certain period of time;



- Productivity coefficient is a measure of business process efficiency that compares the actual use of resources with the standard cost indicator based on best practices or averages in the industry;
- Capacity utilization rate - efficiency of capacity utilization of enterprise resources;
- Product mix ratio is to improve the efficiency of the distribution of the company's resources by focusing resources on more profitable products;
- Price recovery coefficient - the company's efficiency is to maximize the prices of manufactured products while minimizing resource prices;

A total of 66 oil and gas companies were investigated, of which 29 implemented SAP ERP, 7 implemented other ERPs (not SAP) and 30 did not implement ERP. The results of the study showed that the productivity of enterprises that used SAP ERP improved compared to enterprises that did not use SAP ERP.

Performance indicators of companies that used SAP ERP relative to companies that did not use SAP ERP	After implementation
Profitability ratio	0.096
Productivity coefficient	0.043
Capacity utilization rate	0.078
Product mix ratio	0.003
Price recovery coefficient	0.051

Table 1: Performance Indicators

The profitability ratio is 9.6% higher for companies that have implemented SAP ERP. This is due to the fact that the data proceed at all stages of production, from exploration of the field to production and supply of consumers with products to more general requirements in business. You can also notice an increase in the productivity coefficient by 4.3%, as ERP creates a continuous production process: from raw materials to finished products. Improved capacity utilization (7.8%) can be explained by the fact that ERP allows enterprises to identify changes in demand and take the necessary action in response, thus achieving efficient use of capacity.

This study is useful because it studies a certain industry and shows the impact of ERP on the productivity of enterprises in this industry, as it is known that the impact will be different on different industries, for example, comparing the profitability rate of the firm's sales in the oil and gas industry and the consulting company would be useless because of obvious industry differences. The results show that ERP has a positive impact on performance and capacity utilization, which is the reason for increased profitability.

PROBLEMS ENCOUNTERED IN IMPLEMENTING ERP

Although the results of using ERP give many significant advantages, the implementation of ERP is laborious, expensive and time-consuming process, and also changes traditional workflows. There are cases when companies failed because of the above difficulties or some mistakes that companies usually make, and their attempt to

implement ERP was a failure. To avoid this and successfully solve the problems encountered during and after the implementation of ERP, each project participant, namely, an ERP consultant, internal auditor and IT staff, must be familiar with the company's business processes, knew the roles assigned to them and professionally performed their duties. Managers, after analyzing the organization's vision and corporate goals, must be able to address issues related to the integration of the system into the company, for example, can management make efforts to re-engineer business processes to achieve impressive results, can the use of ERP improve the competitive position of the organization, or whether the organization will be able to financially cope with expensive ERP implementation, etc. Auditors, in turn, help the organization lay the foundation for success, as they have knowledge about internal control methods, regulatory requirements and business processes.

As mentioned above, the implementation of ERP entails a reorganization of the business processes of the enterprise, in accordance with best practices, so that it fits the ERP model. Although the changes are tailored to the best practices of the industry, the ERP system can be flexibly customized to certain requirements of an individual company, but it should be taken into account that the price of such implementation will be higher. One of the most difficult problems facing the company when implementing the system is preparing staff for the new system. This problem becomes especially more difficult if employees resist the introduction of a new system and modified workflows, giving preference to traditional and habitual ways of working.



Studies conducted to determine the success factors of ERP implementation found that involving users in the planning and installation process is one of the most important factors. Thus, during the implementation of the system, most attention is paid to technical problems, such as direct installation in a short time using limited resources, companies may neglect the human factor, which can cause failure. It is important that users participate in the implementation of ERP, because it is users who can determine the requirements for the system within their specialty, since they are the ones who are familiar with all the subtleties of business processes and the field of knowledge in their functional units, thus creating a positive attitude to ERP that meets the needs of users. In addition, during the planning and installation of the ERP system, it is important to involve the best employees in the project for the successful implementation of the system, who are well aware of the needs of the company and help move the project in the right direction. A poor understanding of the project and an inability to lead the project correctly is also one of the main reasons for the failures to implement ERP.

As you know, the cost of implementing the system is high, and this is one of the reasons why most companies using ERP are large because they can afford an expensive project. As mentioned earlier, the more the system is tailored to the needs of the company, the higher the implementation price. In addition, financial resources are invested in staff training to teach them how to use and maintain the system, as well as in bonus and preferential programs, social packages, salary increases, trainings and courses to retain trained specialists. But it should be noted that the use of ERP has a beneficial effect on the retention of employees, as advanced technologies give them the opportunity to work in a convenient format, in accordance with modern business process requirements.

ERP implementation is a time-consuming process. ERP can be implemented gradually - modularly, that is, there is no need to install the entire system at once. The duration of its implementation depends on the number of modules to be installed, the degree of configuration for the needs of the company, the number of interfaces (i.e. interactions) with other programs.

CONCLUSION

ERP brings many advantages to companies among competitors, thanks to the integration of individual functional units of the organization into a single platform that each user will have access to within the provided access levels. The introduction of ERP is a huge, time-consuming, expensive process that requires careful planning and professional performance of the duties of each project participant.

ERP is not just a program with built-in functionality, it is a whole system that is customized for certain needs of the company and changes the way we do business. The main factors contributing to the successful implementation of the system are competent management, as implementation can attract significant changes in the practice of doing business processes and requires large capital investments; as well as the participation of highly qualified users of the system in the implementation process, as they are well acquainted with individual business processes of the company; and after installing the system, which will meet the requirements of users, The implementation process itself is a complex and long process, and even a successful installation does not mean the success of implementation, as the system should still be effectively used by the company's employees. Due to the above shortcomings, some organizations fail, but if these errors are avoided, the system is properly designed and integrated, ERP will increase the company's productivity and profitability.

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IMPORTANT CHANGES IN THE SOCIAL AND ECONOMIC LIFE OF UZBEKISTAN DURING THE YEARS OF INDEPENDENCE (ON THE EXAMPLE OF JIZZAKH REGION)

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ABSTRACT

In this article, the researcher describes the socio-economic reforms in Jizzakh region during the years of independence, the problems and shortcomings in the transition to a market economy in the region, as well as extensive work to address them in the scientific literature, archives and statistics. analyzed on the basis of data.

KEY WORDS: *independence, reforms, Jizzakh, economy, social life, industry, production, product, investments, joint ventures, services.*

INTRODUCTION

Jizzakh region is one of the most important regions in the socio-economic and cultural life of Uzbekistan. Today the effect of large-scale reforms in all spheres in the independent republics can be seen in the example of Jizzakh region.

In fact, Jizzakh region is located in the central part of Uzbekistan, bordering the Republic of Kazakhstan and Syrdarya region in the north-east, the Republic of Tajikistan in the southeast, Samarkand region in the southwest and Navoi region in the west. The nature of the region is extremely rich and diverse, with all the opportunities for increasing the production of agriculture, livestock, industrial products, as well as the development of services and tourism [3, Page 9]. The area of Jizzakh region is 21.1 thousand square meters. According to the administrative-territorial division, it consists of 12 rural districts, 7 cities subordinate to districts, 8 towns and 561 villages. According to 1992 data, the region has a population of 807.4 thousand people. On average of 40 people fell to the ground [4, Page 12]. According to statistics, the population of the region as of January 1, 2019 amounted to 1352.1 thousand people, an increase over the beginning of the year by 27.1 thousand people or 102.0% [1, Page 1].

Now, because of independence, in our whole country, including Jizzakh region, has the opportunity to move the economy, production relations from a command-and-control and planned

economy to a free, market economy. The peculiar way of forming market relations in the conditions of our country, the way of life of our people is defined in the work of the First President of Uzbekistan Islam Karimov "Uzbekistan - a peculiar way of transition to market relations" and in speeches and speeches in Parliament was given.

Analyzing the first years of our independence, the economy has been begun to radically reform in order to organize a socially orientated market economy in Jizzakh city. The legal basis for economic reforms was the laws, decrees and resolutions of the President of the Republic of Uzbekistan [5, Page 11].

MATERIALS AND METHODS

During the years of independence, some sectors of the economy of Jizzakh region have been studied by scientists in various fields. In particular, the issue of "Development of production cooperation of small enterprises with large enterprises in Jizzakh region" was studied by M.A.Aynakulov, also Z.N.Tojjeva's research partially studied the socio-economic problems of population growth and location in the region, researcher J.X.Bobonazarova analysed problems on decreasing unemployment of women who live village in Jizzakh region. What is more, A. Berdikulov carried out research on the restructuring of enterprises in the construction materials industry in the region.



The history of socio-economic development of Jizzakh region in 1991-2009 was briefly analyzed by such researchers as H.Haydarov, K.Usmanov, A.Tashkentboev and U.Nosirov. A comparative analysis of the above literature shows that the history of socio-economic life of Jizzakh region during the years of independence has not been studied by researchers as a special topic from a historical and scientific point of view.

RESULTS

When we study the archival data in order to assess the socio-economic situation in the Jizzakh region in the beginning of independence years in 1991-1992, we can see that the implementation of reforms has become more complicated. Not only is stated about the work done by the members of the Standing Committee, but also a number of shortcomings are listed in the report of the Regional Council of People's Deputies, the Standing Committee on Construction, Building Materials Industry, Road Construction, Housing, Utilities and Landscaping. In particular, the report states that the transfer of regional administration, first to the Councils and then to the governors, slowed down the work of the commission, as a result of which the commission members did not fully participate in the meetings. It is noted that when some of them participated, only they attended little proposal and view, furthermore, adopted resolutions could not be controlled in time. [2, Page 76]. However, in 1991, capital money 356.7 million sums were disbursed, 203.5 million sums were spent on building work. This construction and installation work 89 and 84% of the plan were carried out. During this period, 255 thousand square meters of housing of which 146 thousand square meters were private housing, were given to use. In addition, schools for 5900 students, a kindergarten for 1335 places, hospitals for 157 places, a polyclinic which can be treated 5 people per hour, 287 km of power lines were built and handed over to use. [2, Page 77]. In addition, the integrated plant in Dustlik, which produces 300 tons of flour per day Uchkuloch ore crushing plant, Usmat brick plant, Jizzakh state farm steam boiler, 4 greenhouses, Gallaorol cannery, children and adolescents' sport school, a warehouse which food is preserved in Jizzakh city, a warehouse in Jizzakh district with a storage capacity of 1,000 tons and a number of facilities have been given to use. During the first half of 1992, 376.9 million sums of capital funds were disbursed in the region, construction and installation works were performed for 190.1 million sums, and 132.9 million sums main funds were begun to work. [2, Page 78].

DISCUSSION

After Uzbekistan gained independence, the severance of economic ties in the former Soviet Union and the sharp rise in prices during the transition to a market economy had a negative impact on housing, one of the most important construction projects in the Jizzakh region. Only in the first half of 1992, housing estate was planned 61.4 thousand square meters which is 38 thousand square meters less than planned. In addition, in 1992, 60 seat kindergartens were built less than planned.

Only 6,300 seat schools, 1,270 seat kindergartens, and 200 bed hospitals were planned to be built in the region, which was a too small amount compared to the demand. In the region 40 million bricks were produced, which is 4-5 times less than the current demand. Due to insufficient state funding for construction, the construction of schools, kindergartens and hospitals, which are planned to be built in the future at the expense of enterprises and organizations, farms and further development of local production of building materials was proposed by members of the Standing Committee [2, Page 80].

State property was gradually privatized in the conditions of transition to a market economy. When we talk about the changes in the socio-economic sphere in the region, we must first talk about the privatization process, which is the most important part of the reforms. Initially, retail trade, service and small local industrial enterprises, and the housing stock were nationalized. State-owned apartments were privatized free of charge to war veterans, teachers and researchers, engineers, medical and cultural workers.

If we pay attention to the privatization process, it is clear that in 1992-1994, shops, service facilities and small businesses were sold to employees of the company. In 1994, 334 objects and in 1995 81 objects were processed in the processing and agro-industrial, construction, industry, transport, communications, social spheres [3, Page 39].

In 1994-2005, a total of 2,607 state-owned facilities were privatized in Jizzakh region and the city of Jizzakh. As a result of the privatization process, the state budget received more than 382.8 million sums. Medium and large enterprises were transformed into joint-stock companies. As a result of these important changes, 263 joint-stock companies and 100 limited liability companies with state shares were established in Jizzakh region [6, Page 213].

It is known that the economic stability of the territory of any country, which is directly related to the volume of gross regional product, its growth. In this regard, in the end of 2014, we can see that the gross regional product of the region amounted to 3.2 trillion sums, which increased 108.6% more than in 2013. The volume of production increased by 4 times compared to 2007. Large-scale structural and



qualitative changes in the regional economy have laid the groundwork for significant growth in the real sector and services. During this period, positive changes have been achieved in the structure of the gross regional product of the region. In particular, the share of industry in the gross regional product of the region in 2007 was 7.9%, in 2014 it was 10.3% and increased by 2.4 points.

Thus, according to separate programs of the Cabinet of Ministers, the total cost of the region is 670 billion sums. 888 projects worth 14605 million sums were implemented and 14,605 new jobs were created. In 2007-2014, commercial banks will provide a total of 205 billion sums for the implementation of regional industrial projects. Sums were allocated. The implementation of such projects in the industrial sector has led to an increase in the role of industry in the regional economy.

It should be noted that in 2014, the region produced 229,085 tons of raw cotton and 70.2 thousand tons of cotton fiber, of which 25.5 thousand tons or 36.3% were processed. In 2007, this figure was only 6%. In 2015, there were 4 enterprises for the production of yarn, 2 for weaving, 1 for dyeing fabrics, 244 for the production of garments, 2 for the production of socks [9].

In Jizzakh, a joint venture Jizzakh Plast Tex was established on the site of a former sock weaving factory, equipped with the latest equipment imported from Germany, Switzerland and Turkey for \$ 54 million. It produces 10.5 thousand tons of yarn a year and 4,000 tons of fabric weaving capacity. On the basis of the former 50th motor depot in Gallaoral district of the region, the enterprise "Nargiza Tex" was established, producing 850,000 pieces of ready garments a year.

Considering the economic changes in the region, emphasizing the Decree of the President of the Republic of Uzbekistan Sh. Mirziyoyev dated January 10, 2019 "On the development of an effective model of state regulation and management of integrated development of Jizzakh region" is necessary.

According to this decree, from March 1, 2019 in Jizzakh region was implemented a test project which was called "Advanced Territory". The main purpose of this was to develop important strategic goals for the rapid development of the region, to create the necessary conditions to increase the competitiveness of products and services produced in the region [7, Page 38].

Recent developments in Jizzakh include Pan Mun See who is a professor at Seoul National University in March 2020, Lee Yang who is director of a pharmaceutical plant for antiviral drugs, and Mee Song who is director of producing a medical plaster plant. As a result of negotiations with the Korean delegation of investors, agreements were

signed to invest \$ 10 million in the production of antiviral drugs and medical plaster in the "Zomin Free Economic Zone".

At a time when the pandemic is spreading around the world, it is very important to establish pharmaceutical companies that meet European standards, which is unique in Central Asia [8, Page 247].

CONCLUSIONS

Jizzakh region has many economic opportunities which are not used. These are:

- Convenient investment condition in the country (having availability of tax, customs and other benefits for foreign investors);
- There are more than 70 deposits in the region and these natural resources are not yet used fully;
- Favorable economic and geographical location of the region (proximity to the center of the Republic, economically developed regions such as Samarkand and Navoi);
- Well-established transport infrastructure (modern M-39 international highway and railway instead of the ancient Silk Road);
- Others such as cheap labour.

During the years of independence, in the Republic of Uzbekistan and including Jizzakh region, on the basis of deepening economic reforms, efficient use of natural resources in solving socio-economic problems arising in the transition to a market economy, the establishment of competitive raw materials, reforms aimed at the development of such sectors as construction and agriculture are being implemented. Based on the above data, we can say that one of the main tasks is to ensure a decent standard of living for the population in the deepening of economic reforms in the region by the denationalization and privatization of property, the creation of market infrastructure, the use of existing opportunities for small and private entrepreneurship, the export of competitive products to world markets and the creation of new jobs.

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ACTIVATION OF POLYMINERAL CLAY DEPOSITS OF THE REPUBLIC OF UZBEKISTAN, ITS METHODS AND CONDITIONS

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ABSTRACT

Natural mineral sorbents - PMS, which include bentonite, opoka, palygorskite and other clays, diatoms, opokas, zeolites and zeolite-containing rocks with a developed specific surface area and the ability to absorb substances from the environment. Interest in PMS is due to the possibility of using them as adsorbents in the separation of mixtures, gas purification, and as a raw material for the preparation of drilling fluids, and also as fillers in the production of polymer composite materials.

KEYWORDS: *surfactants, polyelectrolytes, polymineral, methocaolinization, thermoacid-alkaline.*

INTRODUCTION

The quality of adsorbents, the scope and efficiency of their application is mainly determined by the porosity and chemical nature of the particles of their depression. Regulation of the size of pores and nature, and the concentration of active centers of natural mineral sorbents are carried out by methods of activation - modification (thermal, - hydro - thermal treatment), chemical (treatment with solutions of acids, bases and salts, surfactants -

surfactants, polyelectrolytes - PE) and combined (thermal acid, acidic - alkaline thermal, etc.).

Polymineral clays of the Nurata deposit lie among the coal-bearing deposits and are mined along the way during the development of coal by the open method. Useful strata thickness on average 40m; the total reserves for the areas where the fallow can be mined by the open method is more than 1.5 billion tons.



MATERIALS AND METHODS

The main component of polymineral clay from the Nurata deposit is the clay mineral kaolinite. Quartz sand, organic matter and iron in the form of oxides are present as impurities. On the deposit, the clays are grayish-green, gray, white, light green in color.

The samples were crushed, sieved through a 0.25 mm feed and served as raw material for the activation.

The methods and conditions for the activation are discussed below.

a) Thermal activation of the samples was carried out by heating them in a muffle furnace at 1023 K for 4 h. The dried samples were stored in a desiccator with calcium chloride. The choice of this temperature is due to the fact that it is the temperature above which the methocaolinization of kaolin and the destruction of the montmorillonite structure occurs.

b) Heat-treated clay samples were subjected to acid activation. Clay samples, preliminarily crushed to a powdery state, were treated with a 20% solution of hydrochloric acid HCl in a flask equipped with a water cooler and an electric mixer with constant stirring in a water bath. Activation temperature 373 K, activation time - 4 hours. Acid consumption per 100 g. was 300 ml.

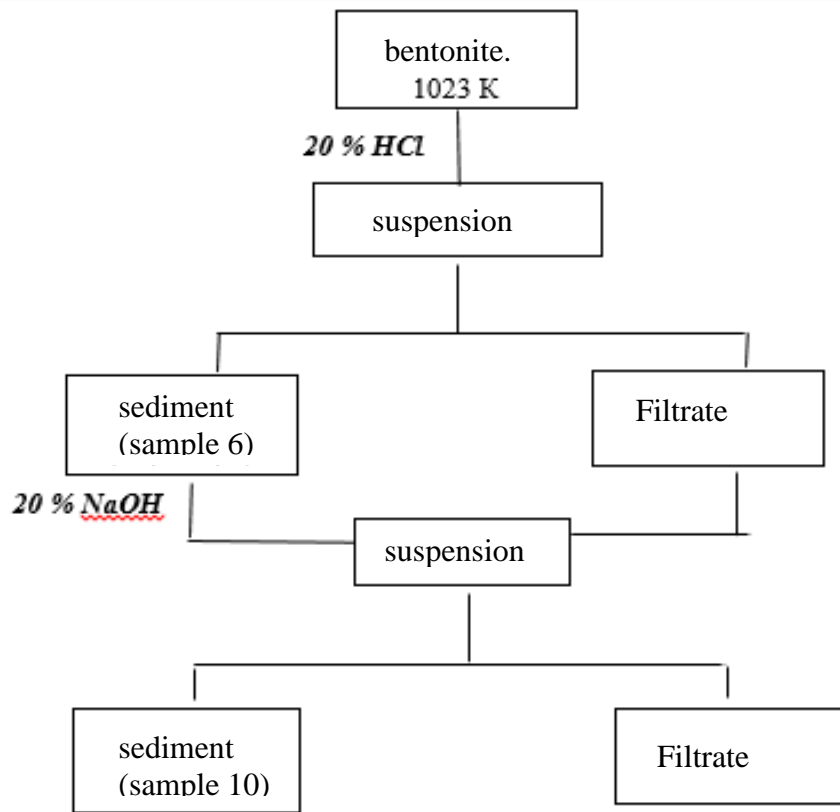
Then the reaction mixture was cooled and distilled water was added to it for dilution and filtered through a paper filter on a Buchner funnel. The vacuum was created by a water jet pump. The precipitate remaining on the funnel was washed with

distilled water until a negative reaction for chlorine ion.

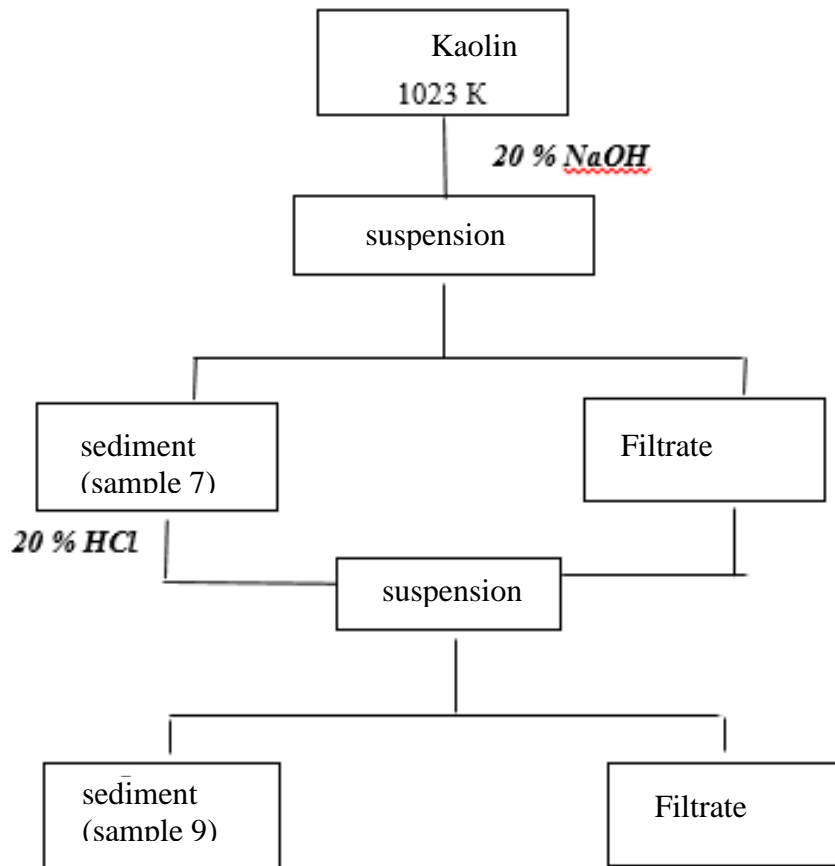
c) Thermal alkaline activation was carried out according to the following method: thermally activated samples, preliminarily ground to a powder state, were activated with a 20% solution of caustic soda NaOH at a temperature of 373 K for 6 hours. Consumption of alkali solution per 100 g. clay was 300 ml. After reaction and cooling, the reaction mixture was diluted with distilled water and then filtered on a Buchner funnel. The precipitate remaining on the filter was washed with distilled water until neutral.

d) Thermoacid-alkaline activation was carried out with Nurata bentonite. After thermoacid activation of Nurata bentonite, the reaction mixture was cooled, washed to remove ions, and filtered. An acid-insoluble residue remained on the filter, which was dried to an air-dry state and weighed (residue yield 51.2 g from 100 g of bentonite) and treated with 20% sodium hydroxide solution. The activation was carried out at a temperature of 373 K for 6 hours until the silica dissolves. The mixture was cooled, the acid extract obtained earlier was added and then filtered. A precipitate of thermoacid-alkaline activated bentonite remained on the filter, which was washed with distilled water.

e) Bentonite of thermoacid-alkaline activation and pregelatinized HCl were obtained by adding thermoacid-alkaline activation to the powdery adsorbent, in small portions of 20% hydrochloric acid until a plastic pasty mass was formed, molded and cut into tablets, which were then dried in a muffle furnace at 773 K for 4 h.



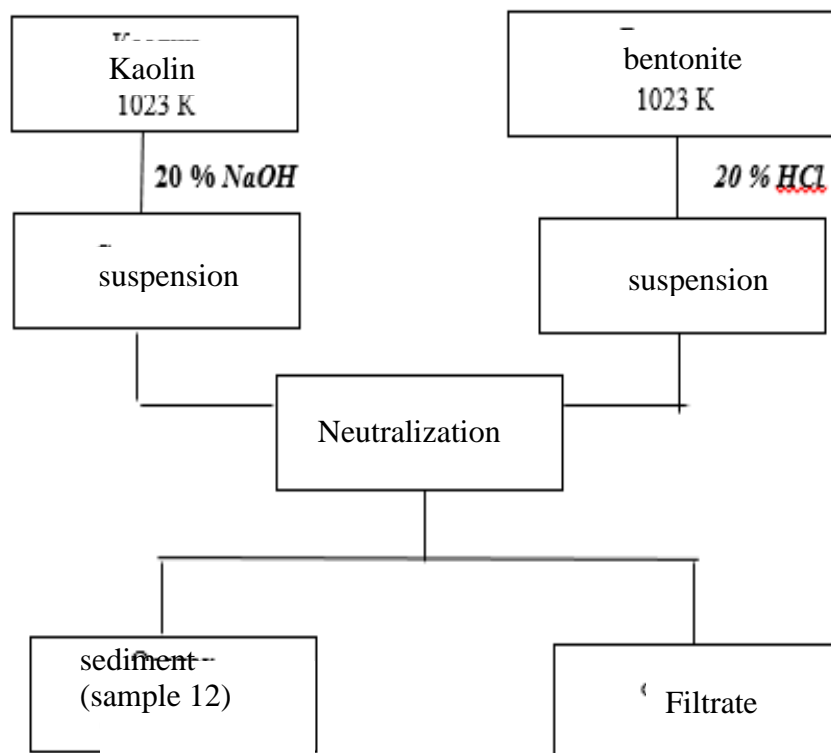
Scheme 1. The process of thermoacid-alkaline activation of Nurata бентонита.



Scheme 2. The process of thermo-alkaline acid activation of Nurata kaolin.



f) Thermo-silicic acid activation was carried out with Nurata kaolin. Kaolin, preliminarily ground to a powdery state, was activated with a 20% sodium hydroxide solution NaOH. The resulting alkaline extract was diluted 2-fold by volume with distilled water and neutralized with a 5% HCl solution. The resulting neutral solution (pH = 6.5 -7.0) was filtered on a Buchner funnel, and the precipitate, after washing with distilled water, was dried at room temperature.



Scheme 3. The process of thermal alkaline activation of kaolin and thermoacid activation of bentonite and their joint neutralization.

g) Adsorbent from the products of kaolin thermo-silica activation and thermoacid activation of bentonite: a) pre-crushed thermo-activated kaolin was activated by 20% NaOH solution for 6 h. at a temperature of 373 K. A solution of thermally alkaline-activated kaolin was obtained; b) pre-crushed thermally activated bentonite was activated with a 20% HCl solution for 4 hours at a temperature

of 373 K. A solution of thermally acid-activated bentonite was obtained; c) the resulting solutions of thermally alkaline-activated kaolin and thermo-acid-activated bentonite were cooled and then poured for joint neutralization (medium of the reaction mixture 7.5), and then filtered. The precipitate remaining on the filter was dried at room temperature.



Table 1.
Sample numbering, preparation conditions and yield

Sample numbering	Conditions for obtaining samples	Exit, %
1.	kaolin clay of Nurata Place of Birth	100
2.	bentonite of Nurata Place of Birth	100
3.	Kaolin heat treated at 1023 K	83
4.	Bentonite heat-treated at 1023 K	79
5.	Kaolin, thermoacid activated	58
6.	Bentonite, thermoacid activated	51
7.	Kaolin, thermally alkaline activated	65
8.	Bentonite, thermally alkaline activated	69
9.	Kaolin after thermo-alkaline acid activation	71
10.	Bentonite after thermo-alkaline acid activation	107
11.	Product after peptization of thermoacid-alkali-activated bentonite after drying at 973 K	90
12.	Thermal alkaline activation kaolin + thermal acid bentonite activation	109

CONCLUSION

All obtained samples were stored in glassware with a ground-in stopper. Before each test, the samples were crushed and sieved through a 0.25 mm sieve. They were dried at a given temperature (for adsorption studies at 150 °C for 4 hours, at a residual pressure of $\sim 1 \cdot 10^{-3}$ Pa).

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STUDY OF THE MECHANISM OF ACTION OF THE DEPRESSOR ADDITIVE IN DIESEL FUELS BASED ON LOW-MOLECULAR POLYETHYLENE

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ABSTRACT

The development of our republic today cannot be imagined without the development of the fuel and energy complex. Which, in turn, depends on the received and developed new types of diesel fuel, their consumer and physical and chemical properties. It is especially important to study the properties of fuels in our rapidly changing climatic conditions. To obtain fuel that meets the requirements of the local consumer, it is necessary to change its low-temperature properties, which affect not only the operational, but also the environmental properties of high-quality diesel fuels. Additive depressants are the most common ways to change the low-temperature properties of a fuel. In this work, the goal is to develop technologies for the production and use of qualitatively new, imported-substituted depressants synthesized on the basis of the use of local raw materials, which increase their efficiency [1,2].

KEY WORDS. diesel, fuels, paraffinic hydrocarbons, oil effluent

INTRODUCTION

During the production of polyethylene, wastes are formed, some of which are a mixture of ethylene-containing gases, paraffinic hydrocarbons, cyclohexane containing low molecular weight polyethylene and an oil product - an oil effluent from an alkaline column, the so-called yellow oil.

To improve the quality of diesel fuels and improve its low-temperature properties, the use of depressant additives is one of the most effective methods. As depressants for diesel fuels, the use of

polymers and copolymers is widely and effectively used. Even in small amounts, the introduction of depressants leads to a significant decrease in the pour point of diesel fuel and a decrease in its viscosity at low temperatures.

With the aim of targeted synthesis of additives and their rational use, the mechanism of action of depressant additives based on low molecular weight polyethylene was studied, which has not only theoretical but also direct practical significance. There are numerous studies and



different theories, but there is no generally accepted view on the mechanism of action of depressants.

Since all petroleum products are characterized by features inherent in classical dispersed systems: heterogeneity and dispersion, at present no one doubts the fact that they, including diesel fuels (DF), are representatives of dispersed systems. It is for this reason that today diesel fuel is called fuel dispersed systems (FDS). Various additives have been widely used to improve the quality of TDS for more than 50 years. At the same time, the mechanism of action of additives in TDS is still not clear [1-3].

The cited works do not take into account the adsorption nature of surfactants, namely:

- in the process of filtration, together with paraffin and without adsorption on paraffin, surfactants can be partially released in the form of a dispersed phase, as well as due to heterocoagulation;
- The possibility of joint crystallization of paraffin molecules and molecules of additives;
- Adsorption of inactive compounds present in technical additives.

Thus, the mechanism of adsorption of depressants on paraffin from its dispersions has not yet been established.

METHODS AND OBJECTS OF RESEARCH

This work presents experimental results proving the mechanism of action of additives in TDS based on low molecular weight polyethylene (LMPE). The following facts unambiguously indicate the MIM in TDS solutions with additives: 1) new absorption bands discovered by UV spectroscopy, which are absent in the spectra of individual components; 2) the independence of the kinematic viscosity of the TDS from the concentration of additives of various chemical nature; 3) the specific electrical conductivity of copolymers - depressants, was not the sum of the electrical conductivity of the components selected for their synthesis. It is MMB that probably promote the formation of a copolymer with an unfolded conformation ("rods").

Some physicochemical indicators of diesel fuel and petroleum products, provided for by GOST 305-82 and TU 38.101889-00, are presented in table 1.

Table 1.
Physicochemical indicators of diesel fuels

The name of indicators	Values of indicators for samples of diesel fuel and petroleum products						
	1	2	3	4	5	6	
Cloud point, °C	-8	-6	-6	-6	+1	+4	
Pour point, °C	-18	-17	-15	-12	-8	+1	
Density at 20°C, kg /m ³	814	837	836	838	825	855	
Viscosity at 20°C, mm ² /c	2,39	4,12	5,23	5,02	3,97	-	
Aniline point, °C	66,8	63,6	67,3	67,4	69,4	76,6	
Fractional composition:	Boils away at temperature, °C						
50 %	221	264,9	278	279	280	325	
96 %	356	352,7	362	353	375	361	
Content of n-paraffins complexed with urea C _p , % masses.	5,9	9,8	2,4	6,8	4,4	8,6	
Content of n-alkanes from their sum, % masses.	C ₁₂₋₁₅	58,92	55,25	38,04	45,93	24,72	5,74
	C ₁₆₋₂₁	35,12	41,36	53,53	48,35	64,91	78,17
	C _{≥22}	6,13	3,43	8,55	5,78	10,37	16,12
$k_1 = C_{12-15}/C_{≥22}$	9,61	15,87	4,44	7,94	2,38	0,35	
$k_2 = k_1/C_{II}$	1,63	1,62	1,85	1,16	0,54	0,041	

1 - component of diesel fuel of the Bukhara refinery; 2 - summer diesel fuel of the Bukhara oil refinery; 3 - year old diesel fuel of the Fergana oil refinery; 4 - winter diesel fuel of the Bukhara oil refinery; 5 - component of diesel fuel of the Fergana refinery; 6 - Bukhara diesel fuel of weighted fractional composition.

The efficiency of diesel fuel DP was evaluated by the change in the pour point and cloud point of diesel

fuel with an additive content of 0.05-0.5% by weight. The pour point of diesel fuel was determined according to GOST 20287-91. The cloud point DF was determined according to GOST 5066-91. To illustrate the efficiency of DP in diesel fuels, Table 2. data on the maximum change in the pour point of diesel fuel and oil products are presented.



Table 2
Depressant Effectiveness in Diesel Fuels

DT samples	Maximum pour point depression Δt_z (°C) in diesel fuels in the presence of 0,05-0,5 % masses. depressants:					
	DP-NMPE	DP-NMPE-PBOO	DP-NMPE-PBOT	DP-NMPE-PBTO	DP-NMPE-PBTT	BNPZ Keroflux-6100
1	23	28	16	2	26	4
2	29	30	5	8	18	3
3	17	18	1	1	6	4
4	33	25	22	7	16	11
5	29	12	17	2	17	3
6	11	0	2	1	4	2

Comparison of the obtained data shows that the lower the initial pour point of diesel fuel, the higher the effect of reducing the pour point of diesel fuels, and the observed effect does not depend on the chemical structure of the additives.

DISCUSSION

The results obtained suggest that the process of interaction of additives with TDS occurs according to the adsorption mechanism. To confirm this, we investigated the dependence of the surface tension at the TDS phase boundary (σ) on the concentration of various additives based on NMPE (depressant-dispersing and multifunctional). It turned out that with an increase in the concentration of additives, " σ " TDS decreased, and the more, the greater the surface activity of the additives. This, firstly, proved that the investigated additives belonged to the surfactant class, and, secondly, indicated an increase in the stability of TDS in the presence of additives.

RESULT

The effect of depressants appears to be:

- in their ability at the moment of the formation of a dispersed phase in paraffin-containing systems to combine with dispersed particles of solid hydrocarbons by adsorption or introduction into the structure of crystals of solid hydrocarbons;

- in changing the size, shape and structure (molecular structure) of dispersed phase particles, and in some cases in increasing the solubility of solid hydrocarbons;

- in the creation of an energy barrier on the surface of solid phase particles due to repulsive forces of one nature or another, which, under certain conditions, prevent the attraction and coagulation of particles of a dispersed phase [4-6].

CONCLUSION

Thus, the experimental data obtained by us give reason to believe that all additives - NMPE work in the TDS according to a single mechanism. The

essence of the mechanism is to increase the stability of the TDS, as evidenced by a decrease in the values of " σ " at its interface in the presence of additives.

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THE ISSUE OF CHILDREN'S BELIEFS IN FICTION (ON THE EXAMPLE OF THE STORY "SHUM BOLA")

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ABSTRACT

This article analyzes the image of a child in the story "Shum bola" by G. Gulom. The analysis shows that the family environment, the spirit of the time and social realities have a great influence on the formation of children's beliefs. The environment reveals that the child's views lead to hatred, then to exposure and revenge, and eventually to disbelief, and as a result he becomes a person who has no support and does not trust anyone or anything.

KEYWORDS: *story genre, child image, child belief, belief breakdown, child view and author's attitude, human gravity, psychology, dynamic plot, description of orphan.*

DISCUSSION

So far, in Uzbek literature, the issue of the hero's beliefs has not been addressed for obvious reasons. We can see that the demands of the times and the method of approaching the work of art have limited the researcher in this area. On the other hand, a one-sided understanding of the concept of belief also imposes limitations. Broadly speaking, belief is not, of course, belief in God and religious teachings. In particular, in the case of the child's beliefs, this concept can take on new and different meanings. According to Erich Fromm, one of the founders of neo-Freudianism, there are differences between rational and irrational beliefs. Irrational belief is based on obedience to irrational authority, which is relative to a person or idea. Rational belief, on the other hand, is rooted in our personal thoughts and feelings. Rational belief is not only the belief in something, but also the determination and steadfastness inherent in our beliefs.

In the field of human relations, trust is an integral part of any friendship and love. Man, first of all, believes in himself, in the existence of a personal "I". The personal essence does not change, regardless of the change of thoughts and feelings at the request of the situation. The other side of believing in a person is believing in the possibility of others. The earliest manifestation of this belief is the mother's belief in the baby, that is, the baby's ability to live, grow, walk and talk. But the growth of the child is so natural that there seems to be no need for any belief.

It should be noted that in the history of mankind, the child's personality has not always been treated positively. In particular, Plato has a somewhat negative attitude towards children. Children and ignorant people often use the word side by side and make them look like each other. Speaking of respecting the soul, he says that children and ignorant people satisfy their spiritual desires as they wish. Aurelius Augustine, on the other hand, attributed man's eternal tendency to sin to the immorality of the child. According to him, corruption has always been in the blood of man, because the defects of the child still appear before he comes into contact with society. Freud's conception of the child is also reminiscent of Augustine's views. Freud looked at the child as a biological being and an individual, ignoring their purity, sincerity, enthusiasm, eagerness to explore the world, in general, the qualities that amaze adults. Z. Freud and his student K. Jung study human psychology on the example of adults. As a result, the notion of non-profit inclinations, which are the key to the human psyche, remains a rigid system. The French philosopher Blaise Pascal recommends counting human life from the age of twenty. According to him, we are no different from a child, but a child is not a complete human being. It was only in the Victorian era (late nineteenth and early twentieth centuries) that the idea that children were "innocent" and that the child would not have bad desires prevailed.



Augustine's views were opposed by Renaissance thinkers. According to them, all evil in man is the result of external influences, as a result of which he has no choice. If external influences are eliminated, man will return to eternal goodness on his own. We can see this in children. They retain their natural innocence until they are exposed to external influences. It is not uncommon for children to be hesitant when they reach a certain age and see social life. The worst thing is that the child has no choice.

We can see in the story "Shum bola" the typical problems of the twentieth century, such as the lack of choice, the collapse of faith. Shum, who entered the work as a teenager, quickly became a teenager. The dynamic plot of the story, the rapid development of events, the twists and turns in the child's psyche force him to quickly overcome his youth. Shum says in his own words that he is a teenager: "It has become clear that we are both teenagers looking for the world and looking for happiness. We have made a covenant with each other, and we have made a great journey."

At this point it is necessary to dwell on the name of the story. There are many images of children in the history of literature. Most of them are anonymous, simply under the name of the Child. However, Ghafur Ghulam, who skillfully uses symbols and adjectives in the creation of artistic images, calls his hero not just a child, but a villain. Prior to the creation of the story, in Uzbek literature there was the image of the old woman Shum bola, and Shum bola is used as a new image under his own name. There is no exact name of Shum boy in the work, but the fact that he is a relative of the author has a definite artistic purpose.

The question "where am I going" is often used in the story. At first glance, it seems that Shum bola asks himself this question when he is homeless, without money and without means. In fact, on the basis of this question, there is the tragedy of not being able to see the future, of not having a strong belief in a teenager on the eve of adulthood. This rhetorical question, which expresses the disintegration of faith, the balance of time and spirit, has escaped the attention of many noxious psychologists. In our opinion, this question is the basis of the work.

Shum bola, who is a typical example of children and adolescents of his time, reveals a number of flaws and shortcomings of social life during his adventures. Disclosure becomes his main tool during the events. In the process of this exposure, a nihilistic negative attitude towards society is formed in him. At the beginning of the story, Shum bola, who is only an observer, gradually enters into dynamic activity through the introduction of the child. He walks away from his home, both

spiritually and spiritually. Her aunt's house is a stepping stone to a great adventure for Shum. Motherhood, motherhood - family, kinship are slowly being torn apart. Indeed, it would be wrong for a child to be thrown into a strange environment. The same is true in real life. Distance, alienation is not sudden, but gradual. Wherever he goes, his psychological state ends in frustration. As a result, in addition to exposing the child, there is a sense of revenge, which is close to violence. In the episodes of demanding money from a young man lying in the tandoor and threatening the people of the shelter with boiling water in a bottle, it seems that he developed the qualities of revenge.

Fromm points out that "faith breakdown" is common in children's lives. According to him, a child begins his life with the concept of love, kindness and justice. The whole life of the child is left to the mother, and the mother is the "source of life" for the child. He trusts his mother because he is young. Such trust is in his father, grandfather, and other relatives, as well as in God. Later, love for the father becomes a source of dreams and aspirations. During this period, the father tries to gain the interest and attention of the child, not to complain. The consent of the father - The consent of God is also a sign that the child is obediently connected to the divine through the father.

According to the age of the child in the play, that is, in his early adolescence, he had to walk from his mother to his father, to win his love. Events separate him from both. Fromm emphasizes that despite the contradictions, the feeling of fatherhood and motherhood is equally important for the child. If the child retains only the feeling of fatherhood, he will be ruthless and lose his human form. If the mother's feelings are preserved, she loses the ability to compare and evaluate, and hinders the perfection of both herself and others. This is the root of the preservation in the psyche of orphans. The child enters the stage of puberty from the period of weak attachment to the mother, through obedience to the father. During this time, he gets rid of both his mother and father. If the family environment is the cause of the parents' failure to fulfill their responsibilities or orphans, the child's perception will change and the trust in him will be eroded. It is in the child of Shum that this confidence gradually disappears.

His departure from home, his wandering in social life, is primarily due to his mistrust of him, himself and people. Although Shum repeatedly told himself and his relatives that he "did not like to go home empty-handed," the real problem was the loss of confidence in his return.

Some "noisy" scholars attribute this to economic hardship. It is not the financial crisis of the time, but the spiritual decline that causes the



teenager, who is about to enter adulthood, to go without money, a stable job and a homeless person. Because, as Andre Morua points out, financial difficulties are never catastrophic. It's all about spiritual poverty, the lack of trust in people, especially children. First of all, there was a mistrust of the child in the family. Her sister also calls her "yes, ... mature." (P. 164). The mother's words, quoted in both places, are just insults and insults, such as "juvenile death, emerald." Such insults and discriminatory remarks do not leave him throughout the work. He is greeted by members of the community with words such as "orphan, orphan, haram." For example, the typical attitudes of the elders of that time towards the child can be seen in the attitude of Haji Baba, who served Shum all winter. Haji Baba's orphanhood does not surprise him. He finds his parents coldly and says, "Hey, it's harmless. As the saying goes, "A good calf sucks two mothers," if you're smart, you'll find a father. The father is found, the mother comes on her own." (P. 240). No matter how much he serves, the Shum child will not be treated well in the presence of Haji Bobo. Even when Haji Baba was upset and in a bad mood, he would say, "I'm an orphan."

One can see the spiritual image of the members of the society of that period in relation to the child in the story. No matter where he goes, he is greeted as a "foreigner, a refugee." Naturally, such an attitude has a negative effect on the character of the developing child. The character of the protagonists in the story is a real expression of the spirit of the times, the relationship with the child, including the orphan, along with the level of that category. It is important for us to have a heroic attitude to the child. Because this relationship is connected with the author's childhood. The attitude that causes a child to grow up in the future, to have a certain motivation, or to change his character and destiny, will live in his mind, that is, in his mind for the rest of his life. As a result, the child develops a sense of humor in relation to society, revenge as a tool of protection. Ghafur Ghulam's categories of childhood and adolescence, which play an important role in the artistic perception of the world, are the basis for both the creation of individual characters and the artistic concept of their works in general. Examining the writer's ideas about childhood and adolescence in full detail will help the writer to delve deeper into the world of art.

For Ghafur Ghulam, the world of naturalness, kindness, and purity serves as an ideal and contrasts with the contemporary reality of the writer. We did not tell the writer in vain contemporary events. The reason is that the image of Shum Bola lived in the mind of Ghafur Ghulam all his life. He lived a lifetime with the dream of

returning to childhood. Not all creators love the image of a child. In particular, in order for him to address the image of a child at a certain age, the creator must not have abandoned himself as a child to a certain extent. From a psychoanalytic point of view, it has been proven that childhood facts do not fade over the years, but appear in some form. If the whole child is lost, how will it be replaced? In this case, the whole head is repeated through the image of the child. The second child is created as a person. To confirm our opinion, we can cite the fact that Ghafur Ghulam worked on "Shum Bola" for many years. The story was first published in 1936 in the magazine "Mushtum" under the name "Dovdirash". The last point was set in 1963. This is a rare event in the creative world. Working on the image of a single child for 27 years is explained by the fact that the author has been carrying a noisy child all his life. That is why the author-hero relationship in the story has a deep harmony. It was this harmony that sparked the debate over whether the work was autobiographical or not. These debates are still going on.

Although the story has been written for almost 90 years, it has not yet received its full value. Every line of it is carefully read, Ghafur Ghulam reads it with intelligence, looking for humor and symbolism. There is a reason to call it a symbol. We have the right to look for symbolism in Shum Bola. Because, as A. Potebnya emphasizes, poetics is a symbol of language. Undoubtedly, Ghafur Ghulam, a leader in the field of poetic skill, spoke in a symbolic language, loading many symbolic meanings under the text of each word he used. As a master of Askiya, a scholar of folklore, he was able to speak the language of his ancestors in the language of Shum, even under political pressure. In addition, it is known from the science of psychology that children tend to think figuratively, to understand life through symbols. In this case, the image of the child is, of course, symbolic in the leading works. In the story, the reality is interpreted from the child's point of view. However, the subtext of the text is taken by the scholar Ghafur Ghulam, who has seen a lot of reaction to the event. In the views of the author and the child, there are commonalities and peculiarities. That is why we are sometimes amazed by the wise words of the child, and sometimes by the childish actions of the author.

When we talk about the image of a child, we are not talking about an imaginary, ideal character and character, but about natural, sincere, pure qualities. That is why child psychology is far from any fabrication. That is why in literature the typical view of the child as a symbol of purity has existed since ancient times. Children are distinguished from adults by the purity of their feelings. What is the



purity of the senses? With closeness to nature. Children are close to nature, both physically and spiritually.

It is known from the laws of physics that the whole universe is governed by gravity. Gravity is the gravitational motion of two objects towards each other. According to A. Einstein, sunlight bends and forms the space. The planets move in the same shape.

It is a catastrophe for the earth to move too far or too close to the sun. Over billions of years, many orbits have left the sun. Only through gravity is the sun holding the planets. Such physical phenomena also exist in human life, which is a part of nature. Literature has been an artistic expression of physical phenomena in its own language. In particular, the sun and its gravity are called "love" in the literature. Regarding the sun, the Avesta confirms our opinion that there is a part of "Mercy" in the "Avesta" (hymn to the sun), and in the classical literature there are poems by M. Agahi, such as "Who is equal to the light of love on a ruined building." If the gravity of the sun acts on the planets in its system, then human love will be, first of all, for those close to him. Human gravity is more common in children. That is why they develop a sense of love. As a child grows older and enters society, gravity thirsts for him. Psychologists and philosophers say that nature and the child should always be together, they should not be separated from each other. They emphasize that nature raises a child to be a real person. In contrast, Shum's life is spent in the community, in the bazaar, in the backyard. Because of this environment, he stays away from his family and relatives as a teenager. Noisy child, who has lost the gravitational force in the family, can not attract any force in society, and wanders in society like a planet that has lost its orbit. As a result, he becomes a person whose faith is shattered and whose future is unknown.

We have already mentioned in the title of the story under the same name that the author has artistic and ideological goals. Usually, the main demand of the story genre is based on the description of the dramatic, lyrical moments of the life of the only hero in the plot. The story is to some extent a subjective genre, based on the adventures and experiences of the only protagonist in the story. That is why most of the stories are named after the protagonist, and in the plot, specific characters unite around the protagonist. There are many similar names in "Shum bola". First of all, the word "boy" in the name of the protagonist. There are differences in the place and style of use of the word "child" and "child". "Bola" is a pure Turkish word and is used in Mahmud Kashgari's "Devonu lug'ati-t-turk" in the general sense of "child" in the style of "bala". It is also said that the word is used figuratively for predators and other animals.

Apparently, the word "child" does not apply only to the human child. "Child" is a Tajik word meaning "child of parents". The child has a parent, who is a descendant of the parents. That is why it is necessary to distinguish between the images of a child and a child in a work of art. Autobiographical works often refer to children. This, in turn, may impose some restrictions on the realization of an artistic goal. The child's image is more general and artistic. In order to turn a hero from a child into a child, he must be separated from his parents and family. Noisy child is also passed from child to child. The child has his own responsibilities to his parents, society and time. In the case of a child, this is not a feeling. As a result, the child may not be able to create his or her own future without having clear goals and values. That is why the part of the child in most stories ends in tragedy.

In matters of faith, the child is not equal. The presence of parents, their influence, and the child's beliefs in a family environment may be clear and limited. In a child, however, beliefs may change, collapse, or even disappear.

In "Shum Bola", one of the scenes that influenced the beliefs of the children was the madness of the bazaar, the neighborhood, the streets. The depiction of demons at the beginning of the story has been analyzed by many researchers. In particular, Professor Umarali Normatov emphasizes in the anecdotes told in the language of demons that it is not the time of Nikolai Pasha, but the time of the Soviets, when the policy of forcing everyone to one side is being ridiculed. Researcher Salima Babaeva's views are in line with U. Normatov's. In addition to the image of demons, it is possible that all of them have the same name. In this way, the author gave an overview of the known strata of that period. The story defines each of the jinns separately: Malla jinni, Olim jinni, Eshan jinni, Hol parang jinni, and so on. From the names of the demons, it is clear that each of them is an artistic generalization of a certain stratum of society. For example, while Olim refers to the insane scholars and Eshan to the insane believers, Hol Parang generalizes the insane merchants. The word "parang" in his name is a colloquial form of the French word "farang", and "farang" is used to refer to a person who is fashionable and wears a shawl. Hol parang was a madman and traded in velvet. Ghafur Ghulam considers Malla to be the first madman. The madness of the mullah can be known as a reference to the Russians. The phrase "there were many demons in Tashkent" is used in two places, and it is shown that the increase in demons is not without reason.

In general, the author refers to "those years", ie the arrival of the Russians in Turkestan, by saying, "In those years, there were so many madmen in



Tashkent that you can't count them," and Malla was the first to count madness. The Soviet state wanted equality, the standardization of people for obedience, and the need for standardization for social development. Ghafur Ghulam portrayed the demons through humor.

In analyzing the work of Ghafur Ghulam, we have tried to use the ideas of his contemporaries, literary critics, philosophers and psychologists. This is because G. Ghulam calculated the works of his contemporaries with their views and was inspired by them. We think that the mutual study of contemporary artists in order to come to the same conclusions about the same environment, the same period, gives good results. In the twentieth century, writers who appealed to the image of the child had more memories than dreams, more dreams than dreams, and this encouraged them to return to childhood. At the turn of the century, this situation was strong due to the environment and the period. Behind the images of children created in the twentieth century, one can see the authors who lost their childhood early. That is why we do not see the image of a happy child in the stories of the century. In the end, we see that their fate remains on the streets or they become victims of the environment. The reason why a writer creates the image of a child and turns him into a victim of the environment can be considered as the need to eliminate external influences. In the same way, the story "Shum bola" is a four-sided qibla. But I wish I could go somewhere" (p. 286). In this conclusion of the naughty boy, it is possible to understand the collapse of the child's beliefs and uncertainty about the future. In line with "Shum Bola", Abdullah Qahhor's story "Fairy Tales from the Past" also ends with the phrase "What will happen now?" In our opinion, through the last sentence of both stories, the loss of a child is ideologically and artistically summed up.

So, in the middle of the 5-6-month adventure of Shum boy, who looked at the world with amazement at the beginning of the story, these surprises lead to hatred due to the environment, then to exposure and revenge, and finally to disbelief. As a result, he becomes a person who has no support and does not trust anyone or anything.



SHOYIM BOTAEV'S "FORTIFIED MOON" COMPOSITION IN THE ROMANE INTEGRITY

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ABSTRACT

Talented writer Shoyim Butaev's novel "Protected Moon" is an artistic interpretation of the contradictions of human character, the contradictions in the inner world. The protagonist of the work reveals the expression of complex characters through the image of Murtozo.

KEYWORDS: *creative process, composition, art, polyphonic interpretation, image, organic unity, character expression.*

DISCUSSION

At the turn of the twentieth century, the emergence of extremely dramatic socio-economic changes in our country has laid the groundwork for a serious renewal of the cultural and educational life of Uzbekistan. In particular, the nation's achievement of spiritual independence has opened up vast opportunities for the need for serious reform of economic, political and cultural spheres. Especially with the period of national independence, the need to update the moral standards in society has become growing. In prose, especially in the national novel, the study of human spirituality rose to the forefront for a short time. Because, on the one hand, major social problems have been raised on the agenda, and on the other hand, the erosion of existing political patterns increases the need for an interpretation of the psyche. Naturally, this feature gave rise to unique principles of fact-finding. In turn, this situation affects the internal and external content of the genre - the composition. In this regard, we analyze some aspects of the compositional integrity in the novel "The Fortified Moon" by the talented writer Shoyim Butaev.

Given that the history of the Uzbek national novel, the principles of its development are partly determined by the past and mainly by modern reality, it must be acknowledged that Russian and then Western novels played an important role in its formation and development, first in the twentieth century. The theme of the novel "Protected Moon" is the life of Uzbeks in the XX century. Although the protagonist's life is under occupation, these aspects are not emphasized in the novel's thinking, either socially or politically. The source involved in the

novel's thinking is a polyphonic interpretation of human character described at the level of universal problems. Every manifestation of evil is also oppression. To understand the nature of evil that permeates one's soul means to understand the cause of one's own tragedy. The infiltration of evil into the human soul and its tragic consequences are also included in the novel *The Protected Moon*. The artistic and aesthetic significance of the novel is that the writer appeals to polyphonic ways of interpreting in order to engage the novel-specific thinking in the novel.

Indeed, the fact that the novel is composed of polyphonic elements can also be seen from the following examples:

"The eyelids of the sky hung worse, and the mountains seemed to darken. If there is a real connection between nature and man, the boundless steppes, abroku yulguns, wormwood saxophones - the foothills of the Rangon Mountains have noted an unpleasant change in themselves. If this had happened later, he would have been in a trance.

The daydibadal wind dried up the tears of Murtaza, who was standing on the hill, and the clouds, which had gathered at the foot of the sky and filled the face, hardened his eyes. The majesty of the Rangon mountain and the majesty of the sky have given priority to the stubborn zeal of the heart" [1, p. 78].

One of the most important factors in the emergence of non-traditional novels in our novel is the demand for the evolutionary development of the genre, which is a characteristic feature of the Uzbek novel. Sh. Butaev's novel "The Crescent Moon" is a unique ring in the development of national style in terms of artistic perception and expression of reality.



In it, the direct and indirect influence of the mood of society on the human psyche unites the power of poetic observation and the internal order of artistic and aesthetic potential. In the plot of the novel, along with a series of life events, changes in the psyche of the person play a profound role. This is explained by the fact that in recent years, the development of the novel has embodied the peculiar criteria of art, the traditions of world literature.

From the very beginning, the Uzbek novel of the independence period has been striving to meet the national and spiritual needs of our people, to restore our national values, to portray the image of the so-called independent Uzbekistan, to create a new heroic character. It is well known that the novel genre differs significantly from other genres in its composition and character. Today's process of independence and the course of events taking place in it are developing a new essence in the novel genre and, accordingly, make special methodological and formal research a vital necessity. The main purpose of novelism in realizing this need is to form and stabilize a new artistic thinking in the reader.

In the novel "The Fortified Moon" by the well-known writer Sh. Butaev, while creating a series of problems of the period and the character of a modern hero, in this process he pays attention not to the simple details of life, but to the events of the future:

"Abdumutal and Murtaza did not rest until they had carried all sixty bags, despite the fact that they were sweating profusely from the heat. They did not open their mouths or speak to each other.

Rahman was carrying the sacks on the wagon himself. Sixty bags were carried from the wagon to the car.

Abdumutal clapped his hands together:

"That's enough!" It's over!

Rahman stared at him as if he were eating. However, he did not say a word, either because he had done an easy job so far. Murtaza, too, sat in the corner of the carriage, unbuttoned his collar, and began to fan himself. Rahman shouted at Murtaza, thinking that the driver, who had gone to eat, would pack his twenty bags before he returned.

- Hey! Come here! ..

Murtaza looked at Abdumutal as if to say whether he was going or not. Abdumutal was busy with himself at that moment, without even realizing it "[1, p. 81].

For this reason, the relationship between the heroes created by Shoyim Butaev is not just a simple dialogue, but the main tool that helps to reveal the psychological direction of different characters. The peculiarity of the use of speech manners in the novel "Protected Moon" (compared to traditional style novels) is that as you watch the conversations of the protagonists, you also enter into a debate with them

on a particular problem. It awakens in your heart and encourages you to think about the problems of the period. Not only that, but novel thinking draws the reader to logical thinking, to the discovery of the image of the period and the psyche of the protagonist, both in heart and mind.

The relationship between character and speech is the cornerstone of the novel's composition:

"Murtaza saw Mawluda coming from the spring. He had a bunch of black hair around his forehead, just above his eyebrows. Her face was flushed from the cold, adding beauty to the look. The pale ladies, who deliberately painted their cheeks red, would have noticed when they saw the beauty that nature itself bestowed on them, that no matter how attractive the movement of their fluffy hands, they could not paint.

Murtaza approached the girl and froze. He forgot his words and his step. As the whistling melody rose, his distraught thoughts were gathered by the girl's bell-like voice "[p. 1,55].

It seems that in the structure of the novel, compositional integrity plays a certain role. In particular, the above quote also to some extent covers the inner, inner behavior of the protagonist of the novel. The hardships of life, living conditions, and man's fierce struggle between nature are also at the heart of the situations that have led to conflicting conflicts in their minds as a result of their brutal conflicts with one another. As the researcher Z. Pardaeva rightly admits, "there is no polyphonic novel form in Uzbek literature yet. Therefore, only the influence of this term and the relation of some elements are felt "[2, p. 41].

The abundance of independent and incoherent voices and ideas, the true polyphony of full voices, is the most basic feature of polyphonic novels. In such works, people of different character and destiny, created by the author, are systematically dispersed in a single objective world of the writer's thinking. "It is precisely the equal ideas of different tones that blend in with the world of heroes of different minds and categories, while maintaining their non-alignment, and in some cases even come together. In this sense, the speech structure of a polyphonic novel differs from a monologue in that the protagonists think independently and inwardly, have inner freedom, and sometimes do not agree with the author's assessments of the world in which he is born "[3, p. 8].

The composition of a work is one of the important theoretical issues that require a serious approach to artistic creation. Taking into account the experience and ideas available in aesthetic thinking, the composition can be described as follows: Composition is the clarity of the creative focus in the work, the clarity of the artistic idea, the placement of floors and small parts and images in the work and their image norms and purpose. He wrote each of his works with a particular focus on current issues in a



particular society. We think so is his poetic skill. The epigraph from the composition of the novel also contains a feature that is similar to the idea of the work of art. The passage in the work served to illuminate the character and psyche of the protagonists through episodes. Episodic images may include such characters as Tirkash Chol, Doniboy, Binafsha, Anna, Hamroboy. Thoughts about the return of white bulls, expressed in the language of the old man, are generalized to the notions of individual freedom, liberty. Through Doniboy's image, Rongon's insights into the life activities of the peoples in the foothills, along with their customs and traditions, serve to compare this life to their time, thereby gaining a deeper understanding of the differences between national traditions, personality and nature. For Doniboy, who looks back on his past, expresses the love of man for nature, but the contradiction that arises between man and nature over time, the aggression of man against him, is manifested in the eyes of the reader.

Indeed, we have also analyzed the compositional integrity of the novel *The Protected Moon* through the above definitions. In this regard, this work by the talented writer Shoyim Butaev is a perfect example of a mature prose in all respects.

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IN ASKAD MUHTOR'S NOVEL "SYCAMORE" ARTISTIC INTERPRETATION

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ABSTRACT

In the works of Askad Mukhtor, a talented writer and a great representative of Uzbek literature, who works in various genres, the concept of man is reflected in a variety of poetic images. In the philosophical poetry of the writer the inner experiences of the lyrical hero are interpreted, and in his prose works he illuminates the complex aspects of life, the contradictions of the time.

KEYWORDS: *talent, artistic skill, period and artistic hero, the world of images, human tragedy, artistic conflict.*

DISCUSSION

Uzbek literature, which has a long history, has gone through a difficult historical period. Nevertheless, the work of Askad Mukhtor, the master of the twentieth century literature, is a bright proof of this. In each of the author's works one can observe a philosophical observation of life, a well-founded artistic interpretation of the lives of the heroes. The problem of time and man has always been and remains central to the literature. The period makes certain changes in human character, but cannot completely change its essence. The globalization that is taking place in world science, thinking and worldview in literature also requires an assessment of the world of fiction on the basis of universal criteria. In the field of literary criticism, scientific research is being conducted to reveal the expression of the concept of time and man in the works of artists who have played an important role in the literature of a particular period and have a unique creative style. In modern world literature, new approaches to time and human relations, scientific concepts related to the gradual development of artistic thinking as a result of the gradual improvement of literary and aesthetic principles are important factors in ensuring the development of literary criticism. At the current stage of development of modern world literature, special attention is paid to the approach to the work of art on the basis of different methodologies, to determine the impact of the period on the human factor, the character of the works. The fact that the problem of time and man plays an important role in literature, the commonality of human character and the creative

world of art, the need to study the still unexplored aspects of the creative world of art. Carrying out research on the basis of these principles, the study of the period and human relations in the national literature on the basis of modern requirements remains one of the most important issues in world literature. In recent years, our country has made significant progress in the study of fiction in terms of creative individual style.

A number of short stories and novels, literary translations, publicist works and poetry of Askad Mukhtor, which artistically interpret different aspects of life, testify to the writer's mature talent. In most of his works, Askad Mukhtor restores the construction of conflict and plot on the basis of the same period and human relations. It is a characteristic feature of the writer's prose works. Also, the protagonists of the writer are people living in two regimes - the Soviet Union and independence. The main idea of these works on various topics is to study humanity in man, to marvel at the extraordinary landscapes of the human miracle. Another thing that unites them is modernity, as well as the absence of transient "weather". In addition to traditional images, Askad Mukhtor makes effective use of conditional symbolic images and episodes in the artistic study of the concept of time and man.

It is well known that the relationship between consciousness and consciousness is a philosophical concept and it has not been long since it has been included in the list of literary terms. By the expression of consciousness we mean, first of all, a set of moral, ethical and aesthetic concepts that



have become the main norm for social relations, behavior, culture of behavior, in short, society. This principle has long been in the spotlight of Eastern literature. At the same time, the ongosti layer was also referred to as bot-bot. It is noteworthy that in today's literature, the ratio of both ways of thinking is becoming equal. The plot of some works is built entirely in accordance with the principles of ongosti depiction.

In the novel "Plane" by the talented writer Askad Mukhtor, one can see a polyphonic interpretation, as well as the expression of subconscious feelings and certain buds. As the literary critic Tilovoldi Juraev noted: "Without denying all the achievements of world literature in expressing the external and internal life of man, we can say that the flow of consciousness is different, more rational analysis of the human psyche than rational literature" [1, p. 67].

Indeed, in the author's novel "Plane", the fate of man, his fate, tragedies are described in a number of stories, and the sufferings of Achil Baba were perfected in this process. The sufferings in Achil Baba's heart were lessons from life. This feature is further deepened in his dialogues with the Arifs and Azimjans. The symbols in the work indicate that it represents a complex life in the heart of the soul. It was the basis for illuminating the cruelty of life, the artistic conflict of emotions in the human heart. The writer does not directly interpret the changes in Achil Bobo's psyche. His relatives do not understand his groaning.

As the creator speaks of each of the protagonists in terms of their social background, profession, habits, goals and aspirations, along with their individual images, their spiritual world, the spiritual world becomes more visible. The protagonists of Askad Mukhtor's novel "Chinor" are not artificial robots invented or spelled by the author, but people of yesterday and today. They are living, living organisms, sometimes moving around the realm of the mind, sometimes in the realm of nature, finding their way in the path of their dreams, life goals, sometimes losing, sometimes living on the verge of giving up both themselves and the world. "Actually, you can say that there is no water to fish for, let alone fish to fish with," he said. But the writer shows this. Because he sees the events going on even in the imagination of his protagonist and is not mistaken. It will show you too. It convinces you too. And you believe that too. Because his hero wants it to be that way. It's not a sign that it's a trade-off, that it's happening. He wants it to be so, he dreams so much "[p. 3,141]. Observing the changes of time, looking at the laws of the processes in it, is a tool for the writer to reveal the character of the heroes more perfectly. Times will change, the speech and behavior of the heroes will change, but the original

image of these heroes, their spiritual world, the essence of their character will remain unchanged. Observing the changes of time, looking at the laws of the processes in it, is a tool for the writer to reveal the character of the heroes more perfectly.

Thus, the work of the talented writer Askad Mukhtor had a significant impact on the development of our prose today. These interpretations were able to ensure the viability of both the poet's poetry and his prose works.

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IMMUNE DYSADAPTATION AT PREECLAMPSIA

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ABSTRACT

This review presents the role of immunological and biochemical markers in the pathogenesis of preeclampsia. Preeclampsia is a frequent and serious complication of pregnancy with hypertensive syndrome. Also, the article discusses the modern aspects of forecasting, pathogenesis, mechanisms of its development. It was found that in women who have undergone preeclampsia, chronic kidney pathology and hypertension are formed. With preeclampsia, placental insufficiency and inflammatory changes in the placenta are observed, as a result of which perinatal outcomes worsen. Every fourth child with this pathology has the effects of hypoxia.

KEY WORDS: *preeclampsia; dysfunction of endothelium; inflammation factors, pregnant woman*

DISCUSSION

In the structure of maternal mortality in the world, preeclampsia (PE) is up to 15%, more than 30% in developing countries, up to 23% in Russia, and 26.5% in Uzbekistan [6, 7]. The importance of the problem is also associated with a high percentage of the pathological course of pregnancy, in particular its premature termination. Against the background of arterial hypertension, placental insufficiency and fetal growth retardation syndrome, antenatal fetal death often develop, the risk of placental abruption, retinal detachment, eclampsia, intracerebral hemorrhage, massive coagulopathic bleeding significantly increases [4,5].

PE leads to various obstetric problems: placental insufficiency, fetal growth retardation, premature birth, bleeding in childbirth and the postpartum period [19, 20]. This complication of pregnancy takes one of the leading positions among the problems of modern obstetrics and is quite significant in medical and social terms [16-18, 21]. Hypertensive conditions during pregnancy still occupy one of the leading places in the structure of maternal (second place), as well as perinatal mortality after 20 weeks pregnancy (from 15 to 30%) [1,12,16]. Most researchers are focused on preventing the development of preeclampsia, which is primarily associated with the identification of factors contributing to the formation of this

pathology of pregnancy. The presence of a large number of theoretical premises makes it difficult to determine the primacy of certain factors of occurrence and the paths of progression of preeclampsia.

It is believed that various peak moments lead to the development of this pathology, and preeclampsia itself is defined as a kind of vicious circle, from a large number of pathogenetic links, often manifested by multiple organ failure. Indicators of developing dysfunction in the body of a pregnant woman are changes in the immune, neurohumoral and other systems responsible for regulating vascular tone and the state of microcirculation [2,15] Generalized data from the world literature postulate that PE is the result of insufficient adaptation of the pregnant woman's body to increasing immunological loads insolventy, vascular endothelial lesions with increased aggregation of blood cells and a tendency to intravascular coagulation, dis Balance is a product A2 thromboxane and prostacyclin excessive formation in the mother and fetus biologically active substances (mediators, cytokines, interferons, reactive oxygen species), depletion of functional reserves antioxidant system and the accumulation of lipid peroxidation products [10, 22, 24, 25]

Numerous scientific studies of recent years are devoted to the possibilities of predicting this pathology, identifying high-risk groups for the



development of preeclampsia in order to ensure a more favorable course of pregnancy [15,29]. The pathophysiology of preeclampsia remains unknown, but factors produced by the placenta as a result of oxidative stress and causing an excessive systemic inflammatory response [36] lead to maternal endothelial dysfunction, affecting the clinical features of preeclampsia [13,29]. Improper placentation with abnormal cytotrophoblast invasion and incomplete remodeling of the spiral arteries supplying the placenta, presumably causes a change in circulation and subsequent oxidative stress in the placenta, as well as the associated release of endothelial dysfunction factors into the circulatory system [24,12]. Since the introduction of markers correlating with Down Syndrome into practice, a number of other studies have revealed a correlation of other unfavorable pregnancy outcomes with changes in the level of analyzed markers [16,14]. An increase in α fetoprotein, estriol, and chorionic gonadotropin was noted by different authors [20]. Hypertensive disorders caused by pregnancy aggravate the course of pregnancy at the end of the second and beginning of the third trimester of pregnancy. However, this does not mean that until the 20th week the gestational process at the same time proceeds without complications.

Starting from the first trimester, in about half of the women examined, pregnancy is accompanied by various complications, often associated with impaired placentation (partial detachment of the chorion and placenta). The analysis of some clinical and immunological parameters in the examined women performed in our work made it possible to obtain fundamentally new information that is important both for understanding the role of the immune system in ensuring a normal gestational process and for developing recommendations for identifying the risk of developing hypertensive conditions in pregnant women. Pathological changes in the serum content of a number of natural autoantibodies are directly related to the mechanisms of development of this pathology [13,40].

The reason for the development of preeclampsia is a pathological change in the processes of implantation and placentation, the first manifestation of which is a violation of the migration of cytotrophoblast cells at the beginning of pregnancy, which subsequently causes pathological changes in the function of the vascular endothelium. Various growth factors and cytokines are involved in the regulation of the invasion of cytotrophoblast into the wall of the spiral arteries of the uterus [41].

The system of placental growth factors regulates the growth and function of the vessels of the placenta. Placental growth factors, on the one hand, are stimulants of angiogenesis and increase vascular permeability inside the placental uterine bed. On the

other hand, through the autocrine mechanism, the invasion, differentiation and metabolic activity of the cytotrophoblast during placentation are regulated. The most informative in assessing the severity of gestosis is the determination of the levels of vascular endothelial growth factor (VEGF), placental growth factor (PIGF) with their receptors (sflt-1). There is convincing evidence of increased expression of sflt-1 in the placenta and a decrease in the circulation of VEGF and PIGF during preeclampsia[6].

Endothelin acts as an angiogenesis inhibitor that competes with TGF- β . A marked increase in soluble endoglin was found in patients with preeclampsia [27]. However, soluble endoglin is not only a marker of preeclampsia, according to various other placental pathologies [8]. Of great importance is the increase in the level of extracellular fetal DNA by 2-5 times, starting from 17 weeks and 3 weeks before the clinical debut of preeclampsia [9]. Markers of endothelial dysfunction are nitric oxide, angiotensin converting enzyme, thrombomodulin, and von Willebrand factor [10]. In the development of endothelial dysfunction, endothelin is of great importance, capable of both directly and indirectly through the generation of nitric oxide and the formation of angiotensin-P to affect the change in vascular tone [11].

The study of the mechanisms of formation of endothelial dysfunction opens up new possibilities in understanding the pathogenetic mechanisms of the development of preeclampsia. However, studies of the role of these factors in the development of preeclampsia are few and contradictory. Determination of the critical parameters of these markers during the development of preeclampsia would prevent its transition to a more severe form [29, 34]. Currently, great importance is attached to immune and genetic factors, which can manifest themselves by the features of placentation. Inhibition of trophoblast migration and the absence of transformation of the muscle layer of the spiral arteries as pregnancy progresses predispose to their spasm, decrease in villous blood flow and hypoxia. Subsequently, the complex of hemodynamic disturbances becomes generalized, causing endothelial damage [12].

Hypoperfusion of tissues, hypoxic and ischemic changes in them lead to the development of multiple organ pathology syndrome. In the pathogenesis of the occurrence of preeclampsia, the rheological properties of blood play a special role: hyperaggregation of red blood cells, platelets, dysproteinemia, hypercoagulation, with the development of chronic disseminate intra vascular folding syndrome [28,34]. Against the background of developing hypoxic changes in the tissues, an autoimmune lesion of the central nervous system of



the fetus arises due to a violation of the blood-brain barrier. As a result of a significant increase in BBB permeability, neurospecific proteins enter the fetal peripheral blood stream after chronic intrauterine hypoxia. They, in turn, contribute to the death and sclerosis of neurons, disruption of the formation of the vasculature of the brain and structural relationships "capillary - glia neuron", as important components.

This indicates the adverse long-term consequences of perinatal cerebral lesions in children whose mothers suffered preeclampsia [3]. In this regard, the study of brain neurotrophic factor (BDNF) in the umbilical cord blood of newborns born to mothers undergoing preeclampsia as a marker of brain tissue damage is relevant. It has been shown that many features of late toxicosis can be caused by inadequate activation of the maternal inflammatory cellular response [15]. Using flow cytometry, inflammatory markers (SG) Pb, SG) 64, CD62L, HLA-DR and intracellular reactive oxygen species) were analyzed in leukocytes of women with physiological pregnancy and in women with preeclampsia.

Although the latter showed lower CD62L expression and significantly higher levels of reactive oxygen production compared to healthy pregnant women, the differences between pregnant women with gestosis and healthy women were in many ways smaller than those between control groups of pregnant and non-pregnant women. Compared with samples from non-pregnant women, leukocytes from healthy pregnant women showed significantly higher levels of CT b +, SG) b4 + cells and oxygen radicals. The authors confirmed and expanded the concept that with preeclampsia there are generalized changes in circulating leukocytes characteristic of inflammation. In addition, it was found that normal pregnancy itself is characterized by a similar response [7,32].

To date, the molecular mechanisms that regulate the activity and migration of lymphoid cells have not been completely studied, among which an important role is given to CD27 + molecules in the differentiation and migration of T-lymphocytes. The macrophages of the decidual tissue of the placenta and trophoblast (SG) 14+ are practically poorly understood. It has been suggested that placental macrophages are capable of providing local regulation of the processes occurring in the tissue of the developing placenta during normal pregnancy, and act as the initiator of a cascade of reactions leading to its termination. Decidual macrophages not only provide the barrier function of the placenta, but also produce a wide range of growth factors that regulate trophoblast growth, angiogenesis, and endometrial decidualization [16]. Mononuclear phagocytes represent one of the largest populations

of immunocompetent cells in the placental tissue, in the chorionic villi they are actually the only representatives of immunocompetent cells.

It is believed that maternal and fetal macrophages block the path of infection, thereby ensuring the preservation of pregnancy. They also participate in protecting the fetus from local maternal immunity. However, to what extent local regulation of processes is changed during preeclampsia, the fact remains unclear [17,38]. In pregnancy complicated by preeclampsia, an imbalance develops between maternal antibodies and fetal antigens. Aggressive immune complexes, deposited on the surface of the vascular endothelium, not only violate the ability of the vascular wall to prevent vascular spasm, but also damage endothelial cells. The subsequent development of immune vasculitis is accompanied by choriodecidual lesions, the release of tissue thromboplastin, fibrinogen, fibrin and the development of DIC. Severe endothelial damage extends to the entire system "mother - placenta - fetus." Deficiency of utero-placental blood flow is possible with blockade of the spiral arteries, which can be caused by genetic or acquired thrombophilic disorders.

Acquired thrombophilic disorders, such as antiphospholipid syndrome (APS), are combined with placental vascular pathology and with abnormal blood coagulation in the bloodstream of the placenta. Two types of antiphospholipid antibodies (lupus coagulant and anti-cardiolipin antibodies) most often lead to the development of preeclampsia in two ways: damaging the implantation of the embryo and causing thrombosis of uterine-placental vessels [19]. The study of the role of cytokines in the pathogenesis of preeclampsia is given special attention. An increase in IL-2 production due to decreased expression of placental HLA-G leads to a decrease in trophoblast invasiveness in women with preeclampsia. In addition, T-10 deficiency may contribute to an increased inflammatory response induced by TNF-a and TNA-g against trophoblast cells. A decrease in T-10 expression by villous trophoblast is associated with a possible increase in the maternal immune response to fetal antigens and inadequate placenta development during preeclampsia. Produced mainly by macrophages and dendritic cells, IL-12 may be the dominant factor in the genesis of preeclampsia participating in damage to the vessels of the placenta [21,42].

Similar markers of inflammation are found in preeclampsia and in the amniotic fluid, which indicates perinatal damage to the fetus. It is these links of the pathogenesis of preeclampsia that are currently the most actively studied, and the number of publications devoted to the role of cytokines, adhesive molecules, leukocytes, inflammation in the pathogenesis of preeclampsia and perinatal pathology



is constantly growing. Considerable attention was paid to the study of the role of cytokines in the pathogenesis of preeclampsia. Serum concentrations of IL-2 and TNF- α are higher in the trimester of pregnancy in those women who later develop preeclampsia [22]. Apparently, a violation of immune regulation takes place much earlier than its clinical manifestation. A study of decidual tissue in patients with preeclampsia revealed strong tissue staining for IL-2 compared with very weak staining in healthy pregnant women. It is believed that IL-2, detected in the decidual tissue of pregnant women with preeclampsia, affects placenta angiogenesis [23,36]. IL-2 activates cellular cytotoxicity.

It is able to disrupt vascularization by activating lymphokine conjugated cells. These data are consistent with those obtained by D. T. Rein et al. [24]. They evaluated the balance of IL-2 and V1 (DH-g) and IL4 cytokines in pregnant women with preeclampsia. An increased expression of IL-2 was found in peripheral blood MNCs in the III trimester of pregnancy. These data confirm the hypothesis that women with preeclampsia do not have immunoregulatory changes that occur during normal pregnancy [17].

It is suggested that IL-12 is involved in damage to placental vascularization, leading to fetal growth restriction, which is usually found in women with hypertension during pregnancy [25]. It is known that IL-12 is able to direct the development of the T-cell response according to the Th1 type. IL-12 is absolutely critical for the development of TU-T cell response to foreign antigens. With a mild degree of preeclampsia, the level of IL-12 was comparable to that of healthy non-pregnant women, and in severe cases exceeded it. Increased expression of antigens and reduced CD14 with a constant number of monocytes suggested the activation of monocytes in pregnant women with preeclampsia.

It was concluded that a decreased production of IL-12 by peripheral blood cells may contribute to the dominance of the TU-type immune response, and an increased T-type response [39]. Angiogenic factors — soluble FMS-like tyrosine kinase-1 (sFlt1), also called receptor-1 vascular endothelial growth factor receptor-1 (VEGF-R1) — was well studied as a possible endothelial damaging factor in preeclampsia [9]. An increase in sFlt1 in the second trimester predicts the development of preeclampsia; it is the best predictor of early preeclampsia. A low concentration of sFlt1 in the first trimester, which predicts an early onset of preeclampsia, was confirmed in J.P. Kusanovic and O.Erez studies taking into account BMI, a history and absence of childbirth in history [31,37]. Most studies have shown that a low concentration of PlGF in the second trimester predicts the late development of preeclampsia [27,41], but others could not confirm

this relationship [21]. Other studies have linked a low serum concentration of PAPP-A (pregnancy-associated plasmaprotein) [13,39]. Inhibin A and activin A are also glycoprotein hormones from the β -group of TGF (transforming growth factors). The placenta is the main source of these circulating proteins, their concentration increases in the third trimester in uncomplicated pregnancies.

A simultaneous increase in activin A and inhibin A is often found, possibly due to the fact that activin A stimulates the secretion of hCG (human chorionic gonadotropin), while hCG, in turn, stimulates the production of inhibin A [9]. Placental protein-13 (PP-13) is another marker that predicts not only preeclampsia, but also fetal growth retardation. In the serum of patients with the development of preeclampsia, the concentration of PP13 increases, despite a decrease in its excretion by the placenta. Perhaps the discharge of PP13 into the mother's blood is due to an expanded syncytiotrophoblastic membrane [32,40]. A study of the course of pregnancy in the third trimester showed that premature placental abruption is more than 3 times more frequent with hypertensive conditions caused by pregnancy and almost 7 times more often, intrauterine growth retardation occurs compared with pregnant women whose gestational process was not complicated by hypertensive disorders. The urgency of the problem is also caused by severe consequences. E of this disease. In women who have undergone preeclampsia, chronic kidney pathology and hypertension are formed.

Every fourth child with this pathology has the effects of hypoxia [14,17,18,20,23]. The study of immunopathophysiological mechanisms operating in the system "mother - placenta - fetus" helps to improve methods for the early diagnosis of preeclampsia and its complications. The selection of pathogenetic substantiated therapy to prevent this formidable complication of pregnancy. Conclusions Thus, the negative impact of hypertensive disorders on the health status of a pregnant woman, perinatal morbidity and mortality is now generally recognized. In this regard, the problem of protecting the health of mothers and children in hypertensive conditions requires the intensification of scientific research aimed at improving the assessment of the risk of developing hypertension during pregnancy, establishing the role of immunological mechanisms in the genesis of preeclampsia, and developing methods for its prevention and treatment. At the same time, early detection of prognostic immunological markers will make it possible in the first trimester of pregnancy to identify among pregnant women a risk group for the development of hypertension.

Further in-depth examination of these women makes it possible to begin the prevention of hypertensive disorders from the beginning of



pregnancy and to monitor the hemostatic system, the condition of the fetus and improve pregnancy outcomes. The developed prognostic criteria will allow predicting the development of preeclampsia in late pregnancy, which makes it possible to identify a cohort of patients requiring observation and threatened with the development of this complication of pregnancy. Timely diagnosis will allow to start the prevention of intrauterine suffering of the fetus on time and, as a result, reduce the percentage of resuscitation care for newborns if early delivery is necessary, reduce the rates of perinatal, maternal morbidity and mortality. All of the above dictates the need to search for new markers and highly sensitive methods for the diagnosis of preeclampsia and its complications to prevent disability of women and their children and, accordingly, to improve quality.

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THE IMPORTANCE OF THE UZBEK KURASH IN HISTORICAL STUDIES IN THE RESEARCH OF HISTORICAL AND ETHNOGRAPHIC CHARACTERISTICS

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ABSTRACT

Uzbek Kurash (a type of wrestling) has a history of almost three and a half thousand years, as evidenced by murals and written sources. This article explores archeological and written sources on the history of Kurash, mainly on the history of Uzbek Kurash.

KEY WORDS: *Kurash, Navruz, murals, S.P.Tolstov, M.Koshgariy, Makdisiy, Firdavsi «Shahnama», Tan dynasty, Sadi “Gulistan”, Alisher Navai’s “Saddi Iskandari.*

DISCUSSION

Kurash is one of the national competitions, which combines many national features, closely linked with the national traditions of the Uzbek people. It is widespread in all parts of Uzbekistan and has both historical and ethnic features. Uzbek wrestling has a very long history, and academician A. Askarov, based on archeological evidence found in ancient Bactria (southern part of Surkhandarya region, northern Afghanistan), states that its roots date back at least 3,500 years. A number of historical sources and archeological monuments confirm that Kurash was a tradition from the earliest times of primitive society. Archaeologist S.P Tolstov in his archeological excavations in Jonbosqala, Khorezm, found that in the 4th century BC the traditional wrestling Kurash between different tribal communities was widespread. Even in Kuykirlgan castle (4-3th centuries BC) was found a mug with a picture of a wrestler. According to the scientist, our ancestors in the past held many wrestling competitions at various weddings and celebrations, especially on the days of Navruz. Well-known linguist Mahmud Kashgari also quoted from the wrestling of famous wrestlers in his works. According to the Arab geographer and traveler Makdisi (10th century), wrestling competitions were held in large cities such as Samarkand, Merv, Balkh on Navruz holidays. An ancient Chinese source, “Tan-shu” noted that wrestling competitions were

held in Fergana on Navruz holidays. As well, historians of the Han dynasty of ancient China (3-1st centuries BC), the Greek historian Pompey Trog (1st century AD) also said that the tribes living in the territory of ancient Uzbekistan grew up skilled wrestlers. There is a lot of information about Kurash wrestling in historical sources. Including we find valuable information in the works of the ancient Greek philosopher Herodotus and Ibn Sina, the father of modern medicine.

Abulqasim Firdavsi in "Shahnama" honored the people's heroes and praised the courage of the wrestlers.

Sadi's “Gulistan” also described the national wrestling Kurash. In it, a wrestler realized that he had mastered the art of wrestling, and that he knew three hundred and sixty very good tricks, so that every day he wrestled in a different way. The wrestler taught one of his favorite disciples three hundred and fifty-nine methods and hid one. The disciple who mastered the science of the teacher became a famous wrestler. Abu Ali ibn Sina (980 - 1037) wrote about the regulation of physical education based on medicine. The great physician in his work gave information about two types of Kurash. He wrote, in wrestling, the two men grabbed each other by the waist and pulled each other, one grabbed the other by the collar, the hand of the other, grabbed the opponent's legs and tried to knock him down using the wrapping and twisting methods. According to Ibn Sina, these



two methods of wrestling were known a thousand years ago. One of them was allowed to grab his opponent's waist and the wrestlers used their feet. In the second, the wrestlers tried to pull the opponent from where he could catch him. If we compare these two types of wrestling with modern types of wrestling, it corresponds to the Fergana and Bukhara methods of national wrestling.

The soldiers of the great leader Amir Temur used various exercises to be physically strong. In particular, they constantly studied wrestling techniques. Soldiers sometimes wrestled alone. During this period, Kurash became extremely popular and was used in the form of wrestling, fighting, spectacle, and competition.

Alisher Navoi, the king of poetry, also wrote about wrestling of wrestlers in his epic poem "Saddi Iskandariy".

From the 14th to the 15th centuries, all rulers organized wrestling competitions on national holidays. The famous commander, poet and statesman Zakhiriddin Mukhammad Bobur in his work "Boburnoma" gave information that he developed the national Kurash wrestling among the soldiers and paid great attention to physical training. According to Bobur, in the 15th-16th centuries in the territory of modern Uzbekistan, wrestlers and warriors grew up mainly among the working people. Rewarding the winners of wrestling competitions with various prizes had been gradually become a habit.

Herman Vamberi, a Hungarian traveler who traveled to Central Asia in the second half of the 19th century, said, "The holiday is celebrated in the family when the child is 40 days old, that is, after the baby's birth after 40 days which is called "chilla", means "forty days".

On the eve of the holiday, various competitions will be organized, and at the end, the wrestlers will compete."

Another approach to the origin of Kurash belongs to ethnographer K.Sh. Shoniyazov. He noted that "Kurash is directly related to the Zoroastrian tradition of circling around the fire, which became popular not only among the settled population, but also in the Middle Ages and later among the semi-nomadic cattle-breeding tribes of the Tashkent oasis."

In general, the popularity of Uzbek Kurash is that, despite the conditions of the wrestling competition, the participants of the neighboring district, region or even the khanate went to wrestle as soon as they heard about the competition. The distinctive ethnic aspect of wrestling was that it did not require a special invitation or invitation for the wrestlers to visit. Upon hearing this news, the wrestlers came from long distances and took part in

wrestling. The race was held on a mat, in straw, sand or mud, surrounded by circular spectators. According to the rules of the competition, young children, then teenagers, and in some cases adult wrestlers, were chosen by weight after the judges announced the start time. After that, the real wrestlers took the stage. It was primarily educational, as well as raising the mood of the audience and participants, raising the joy and excitement of the sport, pointing out that young children would be popular in the future, and older wrestlers shared their skills and experiences. In the past, modern wrestlers also had a special uniform, they wore a jacket, belt and white, red, yellow, blue ribbon (belt, set) on their heads. In some cases, participants wore clothing that did not have a specific color. But according to the special rules of wrestling among the soldiers, each soldier had to have a special mark that distinguished him. The wrestlers' wings were distinguished by a white line or a color line attached to a smooth sponge. Wrestlers' clothing is mostly white, blue, and yellow, and in ancient times the colors were chosen according to the concepts of "world" and "religion". The white and blue pants of the wrestlers were a symbol of purity and courage. In the past, the colors of the Uzbek nation were chosen as a symbol of certain ethnic groups. In particular, black (kara) was seen by the Uzbek people as a symbol of "greatness". This can be seen by looking at the historical etymology of the words "karamangit", "kara koyunli", "karaturkman", "qaraabdali", "karabori" and "karatonli".

Ethnographic materials confirm that Kurash wrestling was one of the main competitions in the life of the Uzbek people. Indeed, our people from the past considered wrestling as the main means of physical training.

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THE USE OF INTERNET TECHNOLOGIES IN THE DEVELOPMENT OF STUDENTS' RESEARCH ACTIVITIES

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ABSTRACT

The article describes the features of using Internet technologies in the development of students' research activities in biological education. The essence of modern approaches to the development of research competencies of students and information about the structure of research activities of students is given.

KEY WORDS: *research, research, research activity, student, biology, biological education, approaches.*

INTRODUCTION

The country is taking active measures to increase the scientific potential of the pedagogical communities by reforming the education system, raising the level of training of scientific personnel to modern standards, attracting creative and talented young people to research activities. The government of Uzbekistan has made education a priority at all stages of reform. The essence of education is science and its continuous development. Therefore, the main component of the National Education model is the training and use of highly qualified science specialists, a manufacturer of advanced pedagogical and information technologies.

Therefore, the intensification of work to direct young people to research activities in modern higher educational institutions, the training of highly qualified personnel in the field of education, in particular, their independent scientific and creative approach to each work, the ability to apply innovations Development of competencies, integration of science, education and production are required.

In the new millennium, mankind has entered the information era of its development, which puts the following in front of school education the problem is to prepare students for life in a rapidly changing information society At present, "computer literacy" is extremely important, and research skills are important components of it. Formation efficiency research skills of students in biology

lessons is not high, the data we obtained during the ascertaining experiment showed that teachers and students consider it possible and expedient to use multimedia and Internet technologies to increase the effectiveness of the development of research skills of schoolchildren in the study.

The relevance of the topic of our dissertation research is due to the need to ensure the quality of biological education based on the use of computer technologies in the context of reducing the number of hours in the program devoted to studying the section "Animals" To solve the problem of the development of research skills of students in the section "Animals", the teacher can be helped by modern computer technologies. This requires the development of a scientifically grounded methodology for using multimedia and Internet technologies.

We considered it expedient to implement the systematic approach through the development and practical application of the methodology as a system consisting of interconnected elements and having a strictly defined structured

Within the framework of a systematic approach, we created a model of the methodology, described the connections between the elements that make up it / This gave us the opportunity to organize an effective process for the formation and development of students' skills and achieve the goals and objectives.

A personality-oriented approach is aimed at taking into account the individual capabilities and



needs of each student when organizing the educational process and preserving identity

personality, taking into account its characteristics. The implementation of this approach is due to the capabilities of multimedia in the presentation of information. Multimedia uses various channels of perception of information from the student and enable students with a predominance of one of the channels to effectively assimilate the proposed educational material.) at an individual pace. In addition, the teacher has the opportunity to increase the interest of students in the study of biology due to the high interest of schoolchildren in the use of computer technology in educational activities.

The implementation of the activity approach requires the organization of an active independent cognitive activity of students. All skills and abilities are formed only in practical activities. Multimedia technologies due to their possibilities of presenting information, allowing to combine text, sound, video, graphic images and animation in a computer system, allow organizing practical activities of students in the "Animals" section, aimed at the study of living organisms. Within the framework of our methodology, the implementation of the activity approach went through the strengthening of the role of independent work of students in the classroom, in extracurricular and extracurricular work.

RESULT AND DISCUSSION

The main findings of the study are as follows:

1. On the basis of theoretical analysis, the process and content of research activities of university students as a type of educational activities, the content of which is focused on the development of personal intellectual qualities, creative self-development in the process of solving problem situations, educational and creative research tasks. The structure of students' research activities is represented by a set of interrelated components — cognitive, axiological, creative, organizational-activity, reflexive-evaluative, which are manifested at a limited, acceptable, optimal level.

2. The necessary and sufficient organizational and pedagogical conditions, contributing to the effective development of research activities of university students: concentration in time, the gradually increasing complexity of problematization of the content, reflexive co-management. The concept of concentrated education is supplemented by the idea of problematization of content in the development of research activities of university students, which made it possible to clarify the content of the concept of "problem-focused learning".

3. Developed and theoretically substantiated: a structural-functional model of the development of research activities of university students in the process of problem-focused learning, revealing development as the assistance of a teacher and students in mastering the problematic content of education; a program that made it possible to ensure the effective development of research activities of university students through modules of interrelated, complementary disciplines, practices and research seminars (methodological, search and design, search and research) in the logic of scenarios of local, modular and system changes, allowing to implement multivariance and nonlinearity ways of development.

4. Criteria and indicators of the effectiveness of the development of research activities of university students in the context of problem-focused learning have been determined: the criterion of effectiveness is the presence of necessary and sufficient organizational and pedagogical conditions: concentration in time, the gradually increasing problematization of the content of training, reflexive co-management); the criterion of effectiveness is the dynamics of creative self-development, manifested at a limited, permissible, optimal level, expressed through indicators of the development of students' research activities: to solve complex problem problems; set goals, highlight the most significant of them; overcome stereotypes, original solution to problem situations, educational and creative tasks; self-organization, self-government; to carry out reflection.

5. A diagnostic toolkit has been formed to determine the level of development of the components of research activities of students, and experimentally confirmed the effectiveness of its development in conditions of problem-focused learning.

The results of the study mainly confirm the validity of the hypothesis put forward and the provisions put forward for defense. The implementation of the conditions of problem-focused education ensures the effectiveness of the development of research activities of university students, which is reflected in the dynamics of their creative self-development.

This study does not claim to be an exhaustive solution methodological, theoretical and practical aspects of the development of research activities of university students.

CONCLUSION

Further research prospects can be determined by the following areas: in-depth development of the issue of the formation of value-semantic orientations of students towards creative self-development in the process of research activities; development of the technology of creative self-



development of university students in the learning process biology; deepening the understanding of the development of research activities of students in the context of training in line with the continuity from the bachelor's level to the level of graduate school.

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PROFESSIONAL ORIENTATION OF PUPLS IN THE SECONDARY SCHOOL

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ABSTRACT

The article deals with the organization of vocational guidance in secondary schools, the formation of motivation in vocational guidance of students, the technology of vocational guidance in biology and extracurricular activities.

KEY WORDS: *school, vocational guidance, content of vocational guidance of students, conditions, methods of work, career opportunities in the subject "Biology".*

INTRODUCTION

Features of modern social economic situation, reflected in the instability of the labor market, the emergence of new professions and specialties, increased requirements society to the level of professional training require school graduates special responsibility and awareness when choosing future profession. Correctly chosen area of professional activity contributes to the formation of a harmonious personality, realization of her creative potential, as well as the process of social adaptation[1]. An important role in shaping professional intentions students are assigned vocational guidance as a purposeful activities to assist in professional self-determination in according to personal inclinations, interests, abilities and simultaneously with social needs.

The formation of interest in professions contributes to the development of a cognitive interest in subjects and an increase in the academic performance of schoolchildren. Therefore, vocational guidance work must be skillfully interspersed with lessons in all subjects and begin with elementary grades. However, there is currently no technology for choosing a training profile. Students often do it intuitively, under the influence of random factors. The development of ways to address this issue is one of the primary and urgent tasks of the school [2].

A contradiction arises: the lack of technology for choosing a training profile and professional definition of basic school graduates, on the one hand, and the need to make this choice, on the other [8].

Organization of work on vocational guidance of schoolchildren in many respects allows to resolve the contradiction that has arisen. Vocational guidance

at school is a part of the educational process and the leading role in it belongs to the subject teacher, who systematically and organically links professional propaganda with the content of the subject and contributes to raising the awareness of students about various aspects of the world of modern professions. [3]

MATERIALS AND METHODS

The content of a modern school biology course has a great career guidance potential and allows them to acquaint schoolchildren not only with the currently relevant specialties of an ecologist, pharmacist, sanitary doctor, landscape designer, but also many others. That is why, one of the most important content components of vocational guidance work in the classroom can be considered professional education. A great contribution to this work was made by famous scientists and methodologists N.V.Muslimov, Sh.S.Sharipov, O'.Q.Tolipov, N.M. Verzilin, I.D. Zverev, M.I. Melnikov, A.N. Myagkova. They looked for ways to establish a connection between learning and work, biological science and production.

Vocational guidance work in the classroom should be aimed at acquaintance with professions, at the formation of a positive attitude of students to a particular profession, which consists in distinguishing it from a number of others and striving to learn more about it, that is, to contribute to the formation of primary professional interest. In the course of vocational guidance, the concept of profession and specialty is introduced, the classification of professions is explained, and professional goals and



motives are determined. Attention is paid to the classification signs: purpose, subject, means of labor.

We explain to students that the goal of work is the result that society requires or expects from a person. The subject of labor is a system of properties and relationships of things, phenomena, processes that a person of a certain profession must mentally or practically operate (for example, the subject of labor of a soil ecologist is soil, its properties and the entire living population of the soil environment). Means of labor are objects, things with the help of which a person affects the object of labor. It is important to characterize the concepts of professional goal and professional motivation, i.e. what for and for what a person chooses a certain specialty. Such work with concepts will allow in the future to more consciously get acquainted with the content of professional activities related to biology.

Career guidance in biology lessons in grade 5. Introducing schoolchildren to the kingdom of bacteria and their role in nature and human life, be sure to tell about the specialties of a microbiologist, biochemist, phthisiatrician, sanitary doctor, infectious disease doctor, pharmacist, livestock technician, soil scientist or agroecologist. In the process of studying mushrooms and lichens, introduce children to their distinctive features, reveal their significance in nature and human life and introduce them in absentia to the professions of a mycologist, pharmacist, doctor, ecologist, and also tell about the specialties of an agronomist in plant protection, agronomist - agrochemist - soil scientist, engineer, technologist of chemical, food and perfumery industries.

At the introductory lesson when studying the course "Plants. Bacteria. Mushrooms. Lichens" should focus the attention of students on the great practical importance of biological knowledge, emphasize their need for many types of professional activities.

In the topic «External structure and general characteristics of plants», revealing the importance of plants in human life, you can acquaint students with the professions of a pharmacist, phytodesigner, landscape architect, forestry engineer, plant cultivation master, gardener, breeder, ecologist, and biology teacher.

When studying the topic «Cellular structure of plants» while studying the structure of a plant cell and the life processes occurring in it, it is necessary to teach schoolchildren not only to use magnifying devices, but also to tell about the profession of a laboratory assistant, biologist. In the course of studying the topic «Organs of Plants», introducing students to the external and internal structure of plants, introduce them to the professions of an agronomist, soil scientist, gardener, florist, breeder, landscape architect and engineer of forest

park economy. (Appendix 2) While studying the topic «Basic life processes of plants», introducing students to the basic life processes of a plant, revealing the essence of soil and air nutrition of plants, tell us about the specialties of an agrochemist, agroecologist, chemical production operator, biochemist, ameliorator, soil scientist, gardener, breeder, florist, an ecologist or a lawyer - an ecologist.

When studying the topic «Diversity and Development of the Plant World», try to introduce such professions as an agronomist, biologist, doctor, hydrobiologist, forester, gardener, vegetable grower, gardener, breeder, pharmacist and ecologist. In the process of studying the topic «Historical development of the plant world», while forming concepts about the evolution of the plant world, introduce students to the profession of a scientist - paleobotanist. Introducing the diversity of cultivated plants and their centers of origin, remind once again about the breeders and tell us about their contribution to the creation of a huge number of different varieties of cultivated plants. It would not be superfluous to say that in order to achieve success in this type of activity, it is necessary to love and understand nature, have good health, be ready for difficulties and not wait for quick results. To maintain and develop a positive attitude towards work, invite students to find proverbs and sayings about work. In the process of conducting lessons on the topic: «Natural communities», inform the students about the profession of a gardener, a master of plant growing and tell about the specialties of flower growers - decorators, flower growers - vegetable growers, landscape architect, agronomist - agrochemist - soil scientist, agronomist-agroecologist, agronomist for plant protection. Explain that natural resources serve people as long as they take care of them. People choosing these professions have to work in difficult conditions, but only thanks to them natural resources are conserved and effectively used.

The school course in zoology, studied in grade 7, contributes to the acquaintance of students with a wide variety of professions and, of course, with the profession of a biology teacher.

When studying general information about the diversity of animals, about their life and science about them, introduce schoolchildren to the professions of a biologist, doctor, huntsman, laboratory assistant, veterinarian, sanitary doctor, ecologist, etc.

When completing a topic on protozoa, tell your children more about the profession of a veterinarian, sanitary doctor or infectious disease doctor, parasitologist or protozoologist.

Introducing students to coelenterates and molluscs, mention the profession of a doctor and



diver, scuba diver and hydrobiologist, as well as their research work in the underwater world.

Studying the different types of worms, tell us more about the specialty of a veterinary and sanitary doctor, helminthologist and hirudologist.

In the process of studying the topic of arthropods, introduce the students to the specialties of entomologist and parasitologist, sanitary doctor and neuropathologist, beekeeper and pharmacist, plant protection agronomist and ecologist.

During the passage of the topic dedicated to chord animals, introduce students to such specialties as a veterinarian, zootechnician, zoo engineer, ornithologist, herpetologist, ichthyologist, fish farmer, breeder, archaeologist, paleontologist, employee of the zoological museum, huntsman, ecologist, etc.

When telling students about the listed professions, be sure to pay attention to the fact that they will have to deal with living beings who will need their love, attention and patience.

Finishing the study of the course «Animals» with the topics of natural communities and the development of the animal world, once again remind about the professions related to animals and their protection, as well as the importance of the profession of a school biology teacher. Report that the scope of the biology specialty is wide. Teachers can teach in lyceums, colleges, not only biology, but also gardening, agronomy, ecology, etc.

In the process of studying the school course «Man and his health», students can be introduced to various specialties of the medical profession.

In the introductory lesson, be sure to introduce the concepts of profession and specialty. The concept of specialty is interpreted as a limited area of application of the physical and spiritual forces of a person, giving him the opportunity to receive the necessary means of subsistence in return for the labor expended. A profession should be understood as a group of related specialties, for example, an ophthalmologist, a general practitioner, etc. All these specialties are combined into one group, designated as a “medical profession”. [4]

When studying the musculoskeletal system for career guidance, introduce students to such specialties as a radiologist, an emergency doctor and a surgeon. Acquaintance with first aid techniques for sprains, dislocations and fractures, as well as with the techniques of applying a splint, helps in the formation of professional skills that can later be used in work. To broaden their horizons, invite students to make reports about modern methods of fracture treatment and the contribution of N.I. Pirogov in traumatology.

In the lessons when studying the topic «Internal environment», be sure to acquaint

schoolchildren with such a branch of medicine as immunology, with diseases of the immune system, the achievements of immunologists, which allow organ and tissue transplantation; Tell us about the prospects for the development of immune engineering, attempts to create a vaccine against cancer and AIDS. Inform students about the contribution of I.I. Mechnikov in the development of the doctrine of immunity, the invention of the smallpox vaccine by E. Jenner, and the vaccination against rabies, developed by L. Pasteur.

In the lesson on the topic «The value of blood and its composition,» tell us about the specialty of a hematologist, laboratory assistant, medical assistant, laboratory assistant, who conduct a study of biological material in clinical, biochemical and bacteriological laboratories. At the same time, be sure to emphasize the importance of laboratory diagnostics, since often the test results say much more about the patient's condition than all other data about him. Let the students know what the doctor can learn by examining the blood formula. Invite them to examine under a microscope a micropreparation «Human blood smear». This contributes not only to the improvement of the skills of students to work with a microscope and the assimilation of the necessary knowledge, but also to the formation of professional skills that can subsequently be used in their working life. flaccidity.

In the lessons on the topic «The movement of blood through the vessels» and «First aid for bleeding», offer to study the methods of medical care for different types of bleeding, try to measure blood pressure, ie. develop stable skills in schoolchildren that can be applied in everyday life and in the future professional activity of a health worker.

In the topic «Respiratory system» in the lesson «Diseases of the respiratory system», draw the students' attention to the importance of the work of pulmonologists and phthisiatricians, as well as to the specifics of the work of radiologists who detect pathologies in the respiratory system and in other organs; emphasize the need for fluorographic studies, fluoroscopy, computer scanning, where knowledge in physics, chemistry, computer science is required. Here, in connection with information on air pollution, introduce the profession of an environmental laboratory assistant, a sanitary doctor; at the same time, point out the differences in the training of sanitary and attending doctors, the specifics of their work.

It is better to learn the specifics of the work of a sanitary doctor or laboratory assistant-ecologist, the practical work «Determination of air dust content» helps students. Before performing this work, try to focus the attention of students on the psychological



and psychophysical qualities of people engaged in laboratory research: accuracy, perseverance, pedantry, special knowledge, conscientiousness, good eyesight.

The study of the topic «Urinary system» allows you to acquaint students with the specialty of a urologist and provides an opportunity to learn more about the work of a sanitary doctor and laboratory assistant.

Studying the meaning, structure and functions of the skin, students get acquainted with the specialties of a dermatologist and cosmetologist.

Acquaintance with the topic «Endocrine and Nervous System» helps to learn more about the work of a neuropathologist and school psychologist. In these lessons, it becomes possible to tell schoolchildren about the importance of the work of an endocrinologist.

Studying the topic dedicated to the senses and analyzers allows you to better acquaint yourself with the specialties of an ophthalmologist, ophthalmologist, otolaryngologist and a specialist in iridology.

When introducing children to various medical specialties, be sure to tell them about the importance of the work of junior medical staff, i.e. about the work of a paramedic, nurse, orderly and nurse. In order to develop interest in this group of professions, try to organize an excursion to the hospital or a meeting of schoolchildren with specialists from the polyclinic. During an excursion or meeting, children not only learn a lot of interesting things, but also receive more specific answers to questions related to a particular specialty.

The course «Fundamentals of General Biology» for grade 9 completes the study of the discipline «Biology» in the basic school. Therefore, in order to solve the most important task facing schoolchildren in choosing a profile of teaching in grades 10-11, it is necessary to pay more attention to career guidance work in biology lessons.

For the purpose of primary professional diagnostics, at the beginning of the school year, conduct a test that reveals the professional orientation of students (Methodology «Differential Diagnostic Questionnaire» by E.A. Klimov). This technique is quite effective, easy to process. It allows you to determine which of the five types of professions: «man - nature», «man - man», «man - technology», «man - symbolic force», or «man - artistic image» - each student belongs. It should be expected that in the future, children inclined to professions of the types «man - nature», «man - man» will choose a natural profile of education. Since it is in secondary school that personal orientations and value attitudes are intensively formed, an interest in the choice of a profession, and therefore in the choice of a profile

class, is revealed. Throughout the school year, I try to pay special attention to these children not only in the classroom, but also involve them in extracurricular, extracurricular and extracurricular work in biology.

In the introductory lesson, draw the students' attention to the fact that school biology has been and remains an important link in the general education system. She quite firmly holds her position, despite numerous attempts to combine it with other subjects in one «Natural Science». Indeed, it is difficult to imagine, say, a qualified doctor who studied some kind of integrated course instead of biology at school.

Studying the topic «Fundamentals of the doctrine of the cell» for the purpose of career guidance, try to acquaint students with the possibilities of applying the methods of molecular biology in human practical activity, primarily in medicine. Explain how doctors, pharmacists, biologists, and biochemists use knowledge about cells and tissues.

In the lessons on the topic «Reproduction and individual development of organisms» for vocational guidance, tell about the profession of an obstetrician-gynecologist, a doctor engaged in prenatal diagnostics, about specialists working with stem cells and conducting research work on cloning organisms, and also touch on the moral and ethical aspects of human cloning.

Introducing the topics «Fundamentals of the doctrine of heredity and variability», «Fundamentals of breeding plants, animals and microorganisms», inform students about the influence of genetics on other biological sciences; reveal the role of genetic engineering in biotechnology, agriculture, food industry, medicine, environmental protection. Introduce the professions of genetics, cytogenetics, microbiology, breeder, gardener, vegetable grower, florist, livestock technician, laboratory assistant, as well as various medical specialties.

Learn about the profession of an archaeologist, anthropologist, biologist, paleontologist, paleobotanist, guide and employee of a paleontological or local history museum helps students study the topics «The doctrine of evolution», «The origin of life and the development of the organic world» and «The origin of man».

In the classroom, when studying the topic «Fundamentals of Ecology», tell not only about the subject and the tasks facing ecology, but also emphasize the enormous importance of work to preserve the natural balance, harmony in wildlife. Along with this, be sure to note that new professions and specialties in the field of ecology are being created. The work of such specialists in modern society is extremely important and in demand. In this regard, educate students about the different careers in the field of ecology. Middle level: laboratory



assistants-ecologists, chemical production operator (with knowledge of the basics of industrial ecology). These specialties are new, they can be obtained in vocational schools. These specialists carry out laboratory analysis of the ecological properties of water, air, soil, they set up and maintain chemical and environmental equipment.

Having received an education in the field of ecology, one can become an ecologist, an agronomist-agroecologist, a technological engineer for laser technologies and environmental instrumentation, an environmental protection engineer in construction, industry, energy, water management, a specialist in radiation safety of the environment and humans, a lawyer- ecologist, etc. These specialties can be purchased in technical, legal and natural science universities. These professions require a solid knowledge of biology and ecology, as well as mathematics, chemistry, physics and social sciences.

Introducing students in the classroom to professions and specialties related to biology, be sure to tell them about the content of professional activity and professionally important qualities necessary for working in a particular specialty. This not only helps schoolchildren to get acquainted with the world of professions, but also helps to better determine the choice, since they form an idea of the ratio of the requirements of the chosen profession and personal data.

Since it is the course «Fundamentals of General Biology» that completes the study of biology in basic school, then at the end of the academic year a questionnaire can be conducted to determine the area of professional interests (methodology «Map of interests» by AE Golomshtok). This encourages schoolchildren to think about their future profession and helps to more accurately choose the profile of education in high school.

During the preprofessional It is planned to consolidate the formation of primary professional interest on a variety of professional materials for the development of 9th grade students. At this stage, a large role in professional self-determination is assigned not only to lessons, but also elective courses. A wide range of these courses helps to identify interests, check the capabilities of students. The content, the form of organization of these courses are focused not only on expanding the knowledge of students in a particular subject, but above all on organizing classes that contribute to the student's self-determination regarding the profile of education in high school, i.e. the main role of pre-profile courses is vocational guidance. They are short-term and alternating in nature, are a kind of training modules that help to expand the area of knowledge, create favorable conditions for the

disclosure of inclinations, abilities, creative individuality, promote professional determination and prepare for the choice of a biological profile of education, orienting the student to the professions for which knowledge of the school course in biology is required.

In order to form a conscious interest and personal readiness for the primary professional self-determination of students, one should not forget about work on vocational guidance outside the classroom.

CONCLUSION

Professional self-determination of a person is an integral part of a holistic life self-determination, presupposes the mutual adaptation of personal needs and interests of modern society to solve the problems posed by the development of the socio-economic situation. A conscious choice of a profession is one of the most important conditions for the development of a person's very personality. A correctly chosen profession allows you to take your place in society.

Currently, it is the school that can help students choose a profession in accordance with their inclinations and abilities. Therefore, vocational guidance at school should become part of the educational process. The school psychologist should coordinate and direct this work, but the leading role in it still belongs to subject teachers. Only teachers can systematically and organically link professional propaganda with the content of the subject and contribute to raising the awareness of students about various aspects of the world of modern work. Shifting the emphasis in vocational guidance of students in basic school from extracurricular work to systemic work in the classroom contributes to the formation of cognitive interest in the subjects studied, professional self-determination and the choice of a profile of education in high school.

School biology has great career guidance opportunities. The implementation of vocational guidance in the classroom creates favorable conditions for the disclosure of inclinations, abilities, creative individuality.

Based on the above, we can conclude that vocational guidance work in the classroom in basic school is one of the forms of preparing students for specialized training in senior grades. The systematic use of vocational guidance in biology lessons contributes to the professional self-determination of students, orientation to the choice of a chemical and biological profile of education and an increase in the cognitive activity of students.



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CLASSIFICATION RISKS OF THE AGRICULTURAL PRODUCTION CHAIN

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ABSTRACT

The agro production chain is often faced with various risks arising at specific links in the chain. For a detailed study of these risks, they should be classified based on certain indicators, which is discussed in this article. Abilities u ubiquity of the consequences of risk and the reversibility of the consequences of risk, i.e. normal risk is simple and well explained by science and legislation. Intermediate zone and non-tolerant zones cause more problems due to the fact that the risks occupy an area that goes beyond the normal damage. Within these zones, the confidence of the estimates is low, the statistical uncertainty is high, and the potential for destruction can reach dangerous limits.

KEY WORDS: *risk, classification, probability, hazard, agribusiness, management. Wordof Damocles, Cyclops, Pitya, Pandora's Box, Cassandra.*

INTRODUCTION

From a scientific point of view, risks are traditionally characterized by the degree of damage and the likelihood of occurrence. Both product characteristics can be measured for risk classification. It is also helpful to include other evaluation criteria.

1. Uncertainty (refers to statistics).
2. Appropriate definitions of the geographic distribution of potential damage.
3. Permissive definitions of a moderate amount of potential damage.
4. Repeatability of descriptions of the possibility of restoring the situation to the state before the damage was committed (restoration skills are possible - reforestation and water purification).
5. The delay of the effect characterizes the large latency period between the initial state and the actual event of damage. Latent time can be of physical, chemical or biological nature.
6. Mobilization potential is understood as a person's violation, social or cultural interests, and meanings that generate social conflicts and psychological reactions of a person or group who suffer from the consequences of risks. In particular, this relates to the perceived iniquities determination of risks and rewards [1,2,3].

RESULT AND DISCUSSION

Traditionally, there are 3 types of risks. Normal, average and tolerant.

Normal is characterized by little statistical uncertainty, low destructive potential, low damage count, where product capabilities and damage are considered, low scores on criteria. Abilities u ubiquity of the consequences of risk and the reversibility of the consequences of risk, i.e. normal risk is simple and well explained by science and legislation. Intermediate zone and non-tolerant zones cause more problems due to the fact that the risks occupy an area that goes beyond the normal damage. Within these zones, the confidence of the estimates is low, the statistical uncertainty is high, and the potential for destruction can reach dangerous limits. These risks can also generate global, irreversible damage that can accumulate for a very long time, or mobilize or frighten a population. In this case, attituoque risks of aversion are absolutely acceptable due to the fact that the boundaries of human knowledge are reached [4,5,6].

In theory, a huge number of risk classes can arise from the criteria. Such a multitude of cases would not be useful for the purpose of developing an appropriate risk classification. Therefore, a classification was developed, where the same risk candidates are classified within a risk class in which they reach or exceed one or more possible limit



amounts in accordance with 8 criteria (table). This classification leads to 6 classes of risks, which are given names from Greek mythology [1].

Risks of the Domoklov Sword class.

Many sources of technological risk have a very high destructive potential, although the likelihood that this potential manifests itself in damage is very low. Typical examples are gas stations, chemical plants, dams, and a meteorite attack. The initial characteristic of this class of risks is their combination of low probability with high damaging ability. In theory, damage can occur at any time, but thanks to the protective measures in place, it is hardly expected.

Cyclops-class risks.

For risks of the "Cyclops" class, the probability of manifestation is extremely uncertain, then how the maximum damage can be calculated. It often happens that these risks cannot be assessed. A number of natural phenomena such as volcanic eruptions, earthquakes, floods belong to this category. Often there is little knowledge of the parameters of the event or a short observation time during which cyclical regularity is identified.

In another case, human behavior affects the likelihood of occurrence in such a way that these criteria become vague. Therefore, the emergence of AIDS, COVID-19 and other infectious diseases, as well as early warning systems for nuclear attacks, also belong to this class of risks.

Pitya class risks.

This class of risks refers to potential risks for which the degree of damage is unknown, and therefore, the likelihood of occurrence also cannot be estimated with a certain accuracy. In this respect, we must assume for the potential of risks of this class that there is a huge uncertainty about the possible damaging effects, and thus also about the uncertainty of damage.

This class includes risks associated with the likelihood of sudden, non-linear climatic changes, such as the risk of global warming, or the instability of the East Antarctic ice sheet, with greater devastating consequences than these land climatic changes. It further includes deep technological innovation in some of the causes of genetic engineering, for which neither the maximum amount of damage nor the likelihood of occurrence of certain damage cases can be estimated from the point of view of modernity. Finally, the class "drinking" includes chemical and biological substances for which some effects are expected, but neither their

magnitude nor their likelihood can be estimated with any precision. BSE risks are a good example of this.

Risks of the class "Pandora's Box".

Risks of this class are characterized by both uncertainty in terms of the probability of occurrence and the degree of damage (only presumptions), as a consequence of high ubiquity, ability and non-repeatability. In addition to permitted organic fertilizers and changes in the biosystem, endocrine disorders can serve as an example.

Risks of the class "Cassandra". These risks refer to risks characterized by a relatively long delay between the triquering event and the occurrence of damage. This case is usually interesting if both the probability and the magnitude of the damage are relatively high. If the time interval was short, then the regulatory authorities should intervene, because the risks are precisely in the non-tolerant zone. However, the time interval between the triquering and the consequence is determined by the fallacious manifestation of security.

First of all, the assumption that the cause will be found before the actual damage can be accepted by us as an excuse for and activation. Anthropogenetic climate change and biodiversity loss are typical examples of this effect.

Meduza-class risks.

Risks belonging to this class refer to the potential for public mobilization. These risks are interesting in the event that there is a great gift between the perception of risk and the result of the analysis of risk experts. The probability of thread occurrence as well as damage is limited. Irradiated food is a typical example of this [3].

CONCLUSION

The main purpose of risk classification is to place risks in one of three zones in order to be able to select an effective and appropriate strategy, regulations and measures for risk policy at different political levels. Characteristics provide a basis of knowledge so that policymakers' decisions have better prescriptions on how to select measures for each risk class. The strategic pursue goal is to transform inaccessible risks into accessible ones, i.e. risks should not be reduced to zero, but move into a normal zone in which overall risk management and cost-effective analyzes will be sufficient to guarantee safety and integrity. Table 1 Various management strategies for different classes of risks are presented.

**Table 1. Overview of management strategies**

Management	Risk class	Damagedegree	Probability of occurrence	Action strategy
scientificaltification	swordofDam ocles	high	low	1.reduction of destructive potential 2.undefined probability
	Cyclops	high	undefined	3. increasing resilience 4. presenting surprises 5.hazard management
Precautionary	pitya	undefined		6.implementing Pre-emptive Principles 7. development of substitutes 8.improve knowledge
	Pandora's Box			9. predictional containment 10. hazard management
discursive	cassandra	high	high	11.consciousness building 12.consiance building 13.public participation in risk communications
	fellifish			14. contingency manegment

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CHARACTER OF THE CURRENT AND RISK FACTORS OF DEVELOPMENT OF DISORDER OF THE HEART RHYTHM IN CHILDREN

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ABSTRACT

The course, prognosis and mechanisms of heart rhythm disturbances in children differ in adults. This is especially true for newborns and young children, whose conducting system is distinguished by functional and morphological immaturity. In this regard, it is of interest to assess the natural course of cardiac arrhythmias occurring in the perinatal period, to determine the risk factors for the development of arrhythmias in newborns and young children. The study involved 50 children. An assessment of risk factors arising in the perinatal period and potentially affecting the development of cardiac arrhythmias was performed. The collection of gynecological, obstetric anamnesis, data on the course of pregnancy and childbirth, early and late neonatal period, infancy, echocardiography, neurosonography, 24-hour ECG monitoring with the determination of heart rate variability.

KEY WORDS: *heart rhythm disturbances, early age, risk factors for development.*

INTRODUCTION

Cardiovascular diseases are a big problem in pediatric cardiology [2,3]. Heart rhythm disorders are conditions that change in speed heartbeats and their sequence. Unlike adults, cardiac arrhythmias in children are often asymptomatic and can progress from functional arrhythmias to life-threatening conditions, and in 40% of cases they are detected by chance. Prenatally and in the early postnatal period, up to 25% of arrhythmias manifesting in the first year of a child's life are diagnosed [13]. However, at this time, issues related to heart rhythm disturbances in young children remain poorly understood [3,6]. Later, the first electrocardiography in our country, the inability of children to formulate their complaints, nonspecific clinical manifestations, as well as the inability to conduct not only stress tests and electrophysiological research methods, but also daily electrocardiographic monitoring Holter makes it difficult to diagnose arrhythmias in children of the first year of life [10]. Heart rhythm disorders occur at different stages of a person's life. The leading etiopathogenetic factors in the development of

cardiac arrhythmias in young children are the presence of an arrhythmogenic substrate, in addition, hypoxia and the morphofunctional immaturity of myocardial tissue aggravated by it [5,9]. The neurohumoral mechanisms of heart rate regulation represent one of the more studied aspects of early cardiology. In the neurological status of children with arrhythmias, there are signs of residual-organic cerebral insufficiency and hypertensive-hydrocephalic syndrome, the formation of which is influenced by trauma of the central nervous system and hypoxia in the antenatal, intranatal and postnatal periods of development [14].

It is known that one of the main predictors of cardiac arrhythmias is an increased activity of the sympathetic nervous system [1]. The emergence and maintenance of tachyarrhythmias, in which the leading role belongs to the relative predominance of parasympathetic influences on the heart, is another concept, and one of the pathophysiological mechanisms of the development of arrhythmias is a decrease in adaptive trophic effects on the heart [4,7]. The sympathetic part of the autonomic nervous



system. The relatively high tone of the parasympathetic division of the ANS plays a protective role up to a certain point, but reduces the sensitivity to wandering influences during the development of tachycardia paroxysm [6,8].

Along with the leading etiopathogenetic mechanisms of the development of rhythm disturbances that are important throughout the entire period of childhood, the formation of arrhythmias at an early age is facilitated by:

- The presence of fragments of specialized conductive tissue of the heart that has not undergone resorptive degeneration;
- Congenital and acquired organic pathology of the heart: congenital heart disease, cardiomyopathy, inflammatory lesions of the myocardium;
- Functional immaturity of the main regulatory autonomic centers responsible for cardiorespiratory control;
- Imbalance of the links of neurovegetative regulation of the heart rate during maturation in the first years of life;
- Transferred ante- and intrapartum hypoxia [11, 12].

The importance of the problem of timely diagnosis and treatment of arrhythmias already at an

early age is due to their prevalence, tendency to chronic course, and the potential risk of sudden death. This problem requires new scientific data, since the risk criteria for complications of cardiac arrhythmias and sudden cardiac death in young children are unknown [15].

The aim of the study was to establish the risk factors for the development of cardiac arrhythmias in young children.

MATERIAL AND METHODS

The analysis of 50 inpatients of the pediatric cardiorheumatology department for the period of 2019 was carried out. Of these, 28 boys (56%), 22 girls (44%). The age structure of the examined children was from 1 to 3 years. Gynecological and obstetric anamnesis was collected. General clinical examination of the child included clinical examination, electrocardiographic examination, 24-hour Holter ECG monitoring, cardiac ultrasound examination, neurosonography.

RESULTS OF THE STUDY

Given the variety of identified cardiac arrhythmias, all patients were divided into groups.

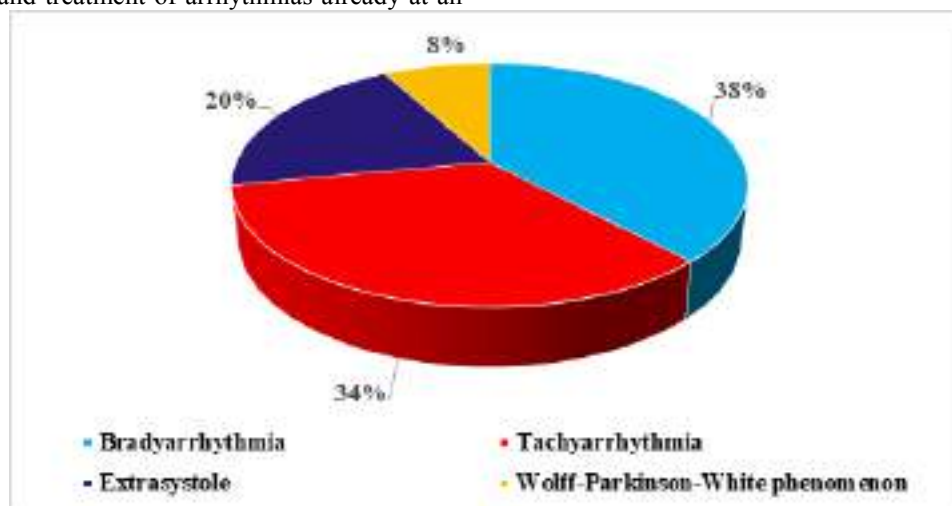


Figure 1. Distribution of children depending on heart rhythm disorders

Figure 1. All children were divided into four groups depending on cardiac arrhythmias: bradyarrhythmias - 19 (38%) patients (sinus bradycardia), tachyarrhythmias - 17 (34%) patients (sinus tachycardia, supraventricular tachycardia,

ventricular tachycardia (VT)), extrasystoles - 10 (extrasystole). extrasystoles). 20%) patients and Wolff-Parkinson-White (WPW) syndrome - 4 (8%) patients.

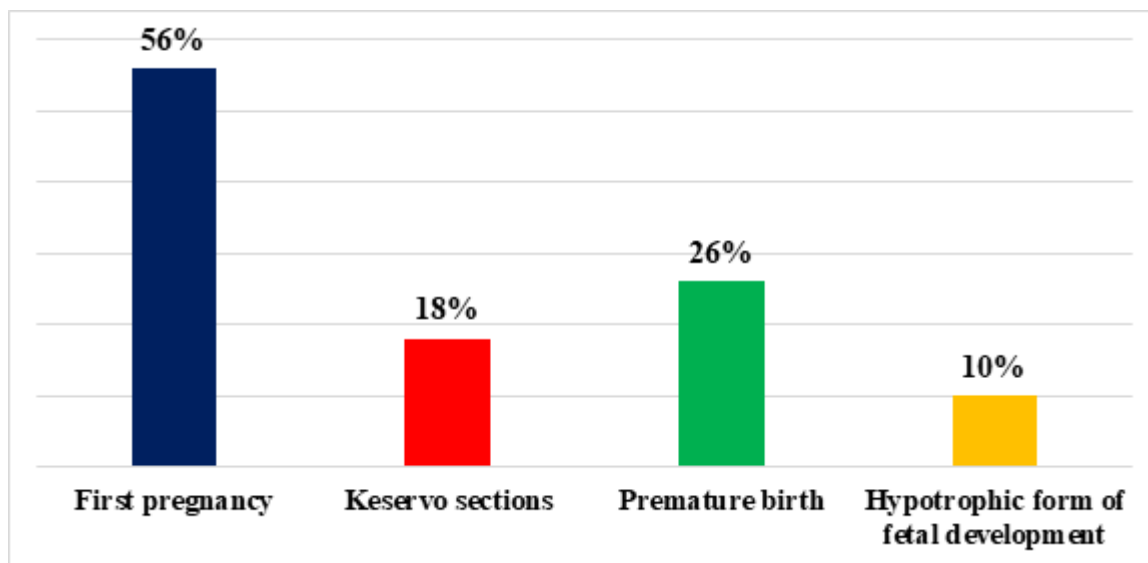


Figure 2. Data of the obstetric history of the mother of children with cardiac arrhythmias

Figure 2. When evaluating the data of the anamnesis and the course of pregnancy, it was found that 28 patients (56%) with cardiac arrhythmias were born from the first pregnancy. In the group of patients with tachyarrhythmia, there were also more children whose mothers gave birth for the first time. In particular, 9 (53%) patients with tachyarrhythmias were born by cesarean section, of the total number of patients it is 18%. On the other hand, the physiological delivery route was used in all patients with bradyarrhythmia. It was revealed that 13 (26%) patients with cardiac arrhythmias were born prematurely, of which 5 (10%) were born with a hypotrophic form of intrauterine growth retardation.

Among the clinical factors that increase the risk of developing cardiac arrhythmias, the presence of syndromes of CNS damage, in particular, convulsive syndrome, stood out. In general, hypoxic-ischemic damage to the central nervous system was less common among patients with heart rhythm disorders. In patients with tachyarrhythmias and syndrome, the Wolf-Parkinson-White phenomenon, there was a lower incidence of hypoxic-ischemic damage to the central nervous system of the 2nd degree and depression syndrome, in patients with extrasystole - hypoxic-ischemic damage to the central nervous system of the 2nd and 3rd degree. In the group of patients with extrasystole, as well as in the group of patients with the syndrome, the Wolff-Parkinson-White phenomenon, hypoxic-ischemic lesions of the central nervous system of the 2nd and 3rd degrees were less often recorded. At the same time, patients with cardiac arrhythmias were found to have respiratory distress syndrome, hemorrhages in the central nervous system, the presence of

syndromes of damage to the central nervous system and, in particular, depression syndrome.

When studying neurosonography indicators in patients with cardiac arrhythmias and various (bradyarrhythmias, tachyarrhythmias and extrasystoles), the posterior dimension of the right lateral ventricle was higher, which indirectly indicates an increase in intracranial pressure.

When assessing heart rate variability, an increase in the mean value of the R - R intervals in children with the syndrome, the Wolff - Parkinson - White phenomenon and the mean values in children with extrasystole was revealed.

An absolute correlation of heart rhythm disturbances in newborns with acute respiratory diseases suffered by the mother during the second half of pregnancy was shown. In the group of patients with the syndrome, the Wolff-Parkinson-White phenomenon, there were also more mothers who had an acute respiratory illness in the second half of pregnancy.

Cardiac ultrasound examination was performed in 38 patients, accounting for 76% of the total. When comparing the indicators, the systolic pressure of the right ventricle turned out to be a significant parameter, which was higher in children with cardiac arrhythmias.

CONCLUSIONS

1. The largest proportion in the structure of cardiac arrhythmias in young children had bradyarrhythmias of extrasystoles - 38%, tachyarrhythmias - 34%, extrasystoles were 20%, Wolf - Parkinson - White syndrome (phenomenon) - 8%.



2. All types of cardiac arrhythmias can potentially contribute to the manifestation of arrhythmias: first pregnancy and first birth; acute respiratory infections suffered by the mother during pregnancy; prematurity; operative delivery; intracranial hypertension according to neurosonography; increased systolic pressure in the right ventricle.

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GRAMMATICAL DISPROPORTION BETWEEN UZBEK AND ENGLISH AS A MAIN PROBLEM IN SIMULTANEOUS INTERPRETATION OF THE LANGUAGES

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ABSTRACT

This article highlights grammatical problems of simultaneous interpretation between Uzbek and English. This particular type of interpretation, and problems occurring during the procedure have not been thoroughly investigated yet. The author in this article highlights frequently occurred grammatical and syntactical disproportions, giving a plenty of examples used by interpreters during the translating process.

KEYWORDS: *translation, simultaneous, problem, interpretation, correspondence, interpreter, inconsistency, conformity, assumption.*

DISCUSSION

Simultaneous interpretation involves the communication of the meaning of a statement by means of another language at the same time as the speaker's statement. This type of interpretation is used at conferences, major symposiums, summits, where representatives of different countries participate and do not always speak international languages at the proper level. It is probably the most complex type of translation, requiring the utmost concentration of attention and speed of reaction. After all, a simultaneous interpreter does not have enough time to select the right words and build an imputed statement. An interpreter has to pronounce the translation at the same time as the speaker, who, by the way, cannot always boast of fluent speech (Alekseeva: 2000). Simultaneous interpretation between Uzbek and English is rather complicated process, for both languages possess totally different morphological structure.

Grammatical construction of each language comprises specific grammatical structures and forms. The grammars of languages belonging to different language families are fundamentally different from each other. English and Uzbek languages are typologically and genetically divided into different groups. English belongs to the German group of Indo-European family, and Uzbek is a member of

Turkic group of languages stemmed from the Altaic language family. English is an analytical language (grammatical meaning is expressed outside the word, i.e. word order, intonation, auxiliary words), while Uzbek is an agglutinative language (grammatical form and meaning formed by adding affixes to the stem and base). In English, the word order in a sentence is stricter than in Uzbek: (Subject + predicate + secondary parts of the sentence). If parts of a sentence are changed, the meaning of the sentence wholly change. For example, in the phrase "Ann fed the baby tiger" the order of the sentence constituents cannot be changed. If the words "Ann" and "tiger" are transposed, the meaning transforms into tiger fed little Anna. The above example shows that a simultaneous translator from Uzbek to English or conversely should be able to assess accurately the imbalances in the structure of both languages in a short period of time and express the idea in a way that is consistent with the content.

Most translators and interpreter training professionals think that it is enough to know the basic terms and general vocabulary to understand the message in the process of simultaneous translation. However, when you focus only on words (vocabulary), one important aspect of bilingualism may be overlooked. These are syntactic differences between languages. Each translator's thinking



resource should include different constructions that occur in the syntax of the two languages. For example, the English phrase "by the way" has several Uzbek equivalents: "aytgancha", "aytganday", "sirasini aytganda", "kezi kelganda". These equivalents belong to the comparative syntactic strategy section of the translator's personal lexicon. Comparative grammar also includes the construction of sentences in languages. While the grammar of some languages is flexible (the basic meaning remains the same when words are replaced), in some languages the word order in a sentence is strict, as mentioned above.

Many scholars, especially E.S. Aznaurova lists three types of grammatical compliance: complete, partial, and inconsistency. Because the grammar section is divided into two main parts, 6 types of compliances are distinguished: 3 types of morphological ones and 3 types of syntactic correspondences. (Aznaurova :1989)

Full morphological correspondence is observed when both languages have grammatical categories with the same grammatical meaning. The number category of nouns in English corresponds to that of Uzbek (singular and plural). For example, book-books (kitob-kitoblar), task-tasks (vazifa-vazifalar), and so on. Partial morphological correspondence is observed when grammatical categories in languages do not match. For example, there are 2 cases in English, and the meanings of 6 cases in Uzbek are expressed in English by other means (word order, prepositions, etc.).

Morphological inconsistency is observed in the case of inconsistency of grammatical categories in languages. For example, in Uzbek there is a grammatical meaning of possession. It is represented by an affix, but such grammatical categories do not exist in English and Russian. In such languages, in this case, they use possessive pronouns. For example, Uzbek words like "kitob-*im*", "maktab-*imiz*", "talaba-*lari*" are represented by possessive pronouns in English (*my* book, *our* school, *their* students). There are also "the" and "a / an" articles in English that express clarity and uncertainty. The interpreters have to express them in Uzbek by lexical or syntactic units. For example:

Do you think it may have a difference?

Uni bizga **qandaydir** ahamiyati bor deb o'ylaysizmi?

Complete syntactic conformity is a structural consistency that occurs when the order of words in a sentence is completely consistent:

Adjective+ noun= red pen – qizil ruchka

Subject+ predicate = he laughed- u kuldi.

Partial syntactic conformity is understood as similarity in meaning, but differs in structure. For example, N + N = brick + house; Adj. + N =

g'ishtli+uy. In partial syntactic compatibility, word order, omitting words, and word substitution are the main ways of interpreting the message into target language.

Lack of syntactic consistency means that the source language is used for translation, but there are no specific syntactic structures in the target language. In addition, it means the absence of one or another grammatical form and construction in the target language, inconsistency in the use of forms and constructions, differences in the combination of words, word groups with the same meaning.

She says she will go. - U kelishini aytadi.

She said she would go. - U kelishini aytdi

In general, in simultaneous translation, it is advisable to translate the text from the original language into ready syntactic templates of the finished sentence in the target language. Choosing this way, the translator doesn't have to spend a lot of time placing complex syntactic patterns. When translating English sentences into Uzbek, the reverse translation method is used. For example, "Taking this opportunity, I would like to express my opinion regarding the issues included in the agenda" – "Shu fursatdan foydalanib, men kun tartibining muhim masalalari yuzasidan o'z fikrlarimni bayon etmoqchiman".

Sometimes the syntactic units in English may be exactly the same as in Uzbek. An example of this is a sequence of adjectives: "The honest lawyer offered him *free legal* advice." - "Halol advokat unga *bepul qonuniy* maslahatini taklif qildi". However, in the syntax of English and Uzbek languages there is no complete parallelism. Prepositions at the end of a sentence can be a bit of a challenge for an interpreter. In this case, the translator waits for the preposition after the verb at the end of the sentence (continues listening). Because the exchange of prepositions in English completely changes the meaning of the compound: "turn on" - "yoqmoq", "turn off" - "o'chirish". When a translator translates a sentence into another language, he divides it into segments and tries to predict the next part of the sentence, or the translator stops translating until he has finished one sentence:

It is obvious that the syntactic pattern of speech in the translated language is very different from the original language, because the syntactic structure of English and Uzbek languages is radically different. When translating an Uzbek text into English, they often use abbreviations, repositioning, and summarizing. Analysis of speech translated at conferences shows that parts of a sentence in Uzbek have the same function in English. In this case, the verb in the passive voice is often used:

"Tadqiqot Kengashi a'zolari uning ko'krak saratoniga qarshi o'ylab topgan yangi dorisini



ishlatishini, laboratoriyasini shahar markazida joylashtirishini qoralashdi.” – “His use of a new drug for breast cancer and location of the laboratory in the city centre were disapproved by the Research Council”.

Many translators use Micro review (summarizing) when translating speech from Uzbek into English. In this way, the text is divided into small parts on the basis of syntagmatic relations, incomplete sentences are completed and the main content of the message is expressed: “Bu muqaddas zaminda har qaysi inson o’z farzandining baxt-saodati, fazli-kamolini ko’rish uchun butun hayoti davomida kurashadi, mehnat qiladi, o’zini ayamaydi.” – “In this sacred land each person does his best for his children”. The summary method develops the translator's ability to anticipate and guess the continuation of a text. (Muminov: 2005)

It is important that simultaneous interpreters develop the ability to predict the final part of a speech without hearing it completely, based on the general direction of the speech. If this technique is not used effectively, the potential for error is high. But prediction is not just an assumption, on the contrary, when the continuation of segments is predicted, the main focus is on forming an upcoming opinion. In this case, the interpreter's external peripheral memory is focused on listening on the principle of stagnation. If the interpreter's prediction of the continuation of the sentence is confirmed, he may overtake in conveying the idea, but if there is a discrepancy between his hypotheses and the continuation of the thought, he will make corrections to the ideas he is expressing.

There are three main types of predictions in simultaneous translation: syntactic, semantic, and pragmatic. Syntactic prediction is figuring out how a sentence or sentence ends. It is further divided into 3 types: formulaic, repetitive, and grammatical (Camayd-Freixas : 2011). For example, if a lawyer says "Ladies ..." or "Xonimlar ..." at the beginning of a word, the interpreter will start the translation without hearing it until the end. Because he knows that the rest of the sentence will be "... and gentlemen." This is a type of formulaic syntactic prediction.

Repeated words and sentences in the text also allow the translator to find and translate in advance. For example, if the speaker repeats the phrase “building a civil society based on a market economy” several times in his speech, it is enough for the interpreter to hear the phrase “building a civil so...” for the third time. This, in turn, speeds up the delivery of the translated text.

Grammatical prediction is expressed by pre-determining a particular part of speech or syntactic structure of a sentence in an incoming message. For

example, when an interpreter is listening to a speech in English and hears a transitive verb, he knows that an infinitive will come after him: “He refused _____” (“U _____ni rad etdi”). Although it is not clear exactly what he refused, the partial guessing itself facilitates the translation process.

Semantic prognosticate is the guessing of meaning. It is based on the translator’s perceptions of the world, his knowledge of language and culture. The more knowledge the interpreter has about the topic the speaker is talking about, the less information he or she will find in the message that is new to him or her. In turn, the process is relatively faster and more accurate. If the prediction of the semantics of a sentence is made immediately on the basis of the incoming message, it can be formed in correlation with the syntactic prediction. When we combine semantic and syntactic assumptions, we make pragmatic predictions of different styles of sentences and texts. In doing so, the interpreter determines how the speaker is expressing his or her thoughts (by describing, comparing, giving examples, classifying, summarizing, analyzing, etc.) and figuring out the continuation of the incoming messages.

The grammatical structure of a language is a generally important aspect of its system. Affixes, grammatical suffixes and word formation, syntactic models, word order, auxiliary words and similar grammatical structural elements of languages serve to indicate not only the grammatical or formal meaning, but the exact form of lexical meanings as well. It is important to express these meanings in the translation process. The grammatical forms of different languages rarely match their meaning and function. Interpreters must be able to choose the most appropriate equivalent for each situation. The structure of the translation must match the structure of the original text and the order of the text segments must not change during the translation process. Because it is desirable that each part of the translated text is structurally parallel to the corresponding part of the text in the original language.

Generally, it is not possible to find a literal equivalent of one text to another. Translators try to understand the meaning of the original speech as deeply as possible, and then translate the comprehended meaning into the same language as the original. In doing so, he makes effective use of several above-mentioned ways, trying to reveal the true meaning of speaker’s speech. Nevertheless, it is vastly significant to regard the problems as a concept, and to consider other aspects while analyzing grammatical problems of interpreter training. This will be the subject of the author’s further research.



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WAYS OF MITIGATING THE NEGATIVE CONSEQUENCES OF THE GLOBAL CRISIS CAUSED BY THE PANDEMIC IN THE CONDITIONS OF UZBEKISTAN AND SOCIAL-ECONOMIC SUPPORT OF THE POPULATION

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ABSTRACT

The economic crisis caused by the Covid-19 virus in the conditions of Uzbekistan. Given the high probability of the recurrence of such a pandemic in the future, proposals and recommendations have been made to implement measures to ensure the elasticity of the economy and provide social-economic support of the population in the conditions of Uzbekistan during the global crisis. In this article suggestions and recommendations are given based on personal research of the author and the results of the research is actual nowadays.

KEY WORDS: *Crisis, economy, pandemic, virus, quarantine, budget deficit, distance learning, Capital, profitable business coefficient, commercial banks, borrow, currency flow, credit, income, trade.*

INTRODUCTION

It is known to all of us that the global economic crisis, which began in 2020 year, occurred because of the SARS COVID-19 virus that originated in China. The virus, which appeared in the province of Wuhan in China, has rapidly spread from the epidemic to a global pandemic in a short period of time, covering from China to the whole world.

Until now, if economic crises are caused by the nobility of various financial instruments, then the occurrence of the crisis in the current period is completely based on unusual factors.

The difference of this crisis from others is that this is caused by the human factor, consciously intending to maintain the health of mankind, States had to give up temporary economic income.

In many countries, quarantine measures were used, and even in some cities curfew was implemented. That is, the borders of almost all countries were closed, international and municipal flights were suspended. In particular, the major trade centers, educational centers, sports facilities, entertainment facilities, household services, construction materials, clothing and commodity markets have been temporarily suspended in

Uzbekistan. People were only given permission to leave the house to buy food and medicines.

The International Monetary Fund (IMF) is comparing widespread pandemic in 2020 year to the war and predicts that its “war” period will last from at least one quarter to two quarters. According to the experts of the foundation, the fight against the coronavirus crisis requires the implementation of measures “during the war”.

In the framework of the support of the population, economic sectors and entrepreneurship, comprehensive measures are being implemented in the tax-budget and monetary policy areas.

In particular, the total amount of loans allocated by commercial banks to tourist operators, hotel business entities, transport-logistics companies and other enterprises of the tourism network, as well as to economic entities that have faced financial difficulties due to restrictions imposed on foreign trade operations is 5 trillion. The payment of sums of debts (without calculating penalty sanctions) was allowed no later than October 1, 2020. Because, the introduction of restrictions on the movement of people in quarantine conditions and the temporary cessation of the activities of some enterprises put pressure on commercial banks, and representatives of



the population and entrepreneurship are facing problems with Credit payments.

The International Monetary Fund (IMF) is comparing widespread pandemic in 2020 year to the war and predicts that its "war" period will last from at least one quarter to two quarters. According to the experts of the foundation, the fight against the coronavirus crisis requires the implementation of measures "during the war".

The recommendations made by the IMF in such difficult conditions testify to the fact that these measures carried out by the central bank in a timely, purposeful and agreed manner are of great importance for the country's exit from the coronavirus crisis without great losses. After all, IMF experts recommend that central banks should have clear and understandable communication with commercial banks in order for them to be active in re-planning payments on credit portfolios for borrowers and economic sectors who suffered serious but temporary shocks during the crisis. Also, in such a difficult situation, the regulator argues that the task should be to ensure that banks continue their lending activities to the economy, taking into account the capital and liquidity buffers. 4,7 trillion soums, which should be repaid by individuals and individual entrepreneurs in April-September 2020. loans in the amount of sum are overdue.

Under the chairmanship of the president of the Republic of Uzbekistan Shavkat Mirziyoyev, on March 19, a decree was adopted on measures in the first place to mitigate the negative impact of the coronavirus pandemic and global crisis events on economic sectors. According to the document, the anti-Crisis Fund is formed, in which 10 trillion soums (more than \$1 billion US dollars or 1.5 percent of GDP) are formed. The importance and timely implementation of the above measures will help to mitigate a certain amount of negative economic consequences.

Therefore, the measures implemented in our country to combat coronavirus and loans to legal entities faced with financial difficulties due to a sharp decline in economic activity amounted to 7.9 trillion overdue amounts and an additional 7 trillion restructuring of payments in sums.

MATERIALS AND METHODS

According to the information of the Ministry of Employment and Labor Relations of the Republic of Uzbekistan, an estimated 5.5 million people are considered to be employed in the informal sector. At present, the number of those who receive an official salary in the economy is 5,6 million, while the number of people who are able to work is 19 million. That is, with people who receive an official salary,

the number of informal items (mostly people who earn on a daily basis) is almost the same. And the negative impact of such crises is more pronounced in the working people, mainly in the informal sectors.

The official telegram channel, organized in cooperation with the Ministry of health of the Republic of Uzbekistan, the Union of youth of Uzbekistan and the public foundation for support and development of the National mass Media, announced on April 2, 2020 at 20:40, "How long you can use your savings?" more than 467000 people (312000 in Uzbek and 155000 in Russian) participated in the questionnaire. Close to 40 percent of those who answered, "I do not have savings." It can be concluded from the questionnaire that in the long-term crisis, the provision of primary consumption of the population is one of the urgent tasks of the ruling.

In Uzbekistan, all those undergoing coronavirus treatment, suspects and those in quarantine, are treated free of charge, at the expense of the state budget. An average of 32 million sums is spent on each patient of the average condition, and 62 million sums are spent on the patient in serious condition.

For each of the quarantined citizens, 2.4 million sums are spent for the 14-day quarantine period, and 2.8 million sums are spent for rehabilitation.

The US government has also adopted a \$ 2.2 trillion assistance program to help families and businesses who are temporarily unemployed, in need of help due to the economic crisis that the pandemic brought. According to him, from \$1200 dollars a month for each unemployed person, the allowance was reduced to a bank account in the amount of 500 dollars for children or transferred to their owners in the form of a check. So, a family of 4 people with two children was given \$3400. 26 million people applied for unemployment benefits. This is even higher indicator than the period of the Great Depression.

In India (almost the same income as in Uzbekistan), the issuance of funds for \$7 for two weeks to the layer of the needy population is being established.

The current population of India is 1,383,382,213 and the population of Uzbekistan is 34 191 700 as of Thursday, October 1, 2020, based on Worldometer elaboration of the latest United Nations data.

RESULT AND DISCUSSION

It is known from the history that developing countries in relation to developed countries are more likely to suffer in such economic crises. Because the country's foreign exchange revenue from exports will



decrease, the price of imported products will rise sharply, the capital flow from developed countries will stop.

Taking into account this fact, the following personal suggestions and recommendations will serve to mitigate the negative consequences of the crisis in Uzbekistan:

- Provide material assistance to families in need, temporarily unemployed (in the form of a plastic card of funds);
- Support local production, free import substitution tenders from VAT and excise taxes;
- Simplification of formalization of medicines and exemption from customs duties;
- To establish innovative structures in the education system, in particular in distance learning in schools, academic lyceums, colleges and institutions of higher education, to create national platforms for organizing distance lectures and seminars;
- Implementation of virtual journals in the assessment of students and students, monitoring to ensure the transparency of the assessment;
- Organize Faculties of distance learning in all higher educational institutions;
- To evaluate the useful coefficient of employees not depending on the time of arrival and late departure of the work place, but on the efficiency of work, to ensure that those who do not have to be in the workplace work from home and create the necessary conditions and technical support of the worker;
- Obtaining credit from commercial banks, ensuring the online implementation of formalities.

CONCLUSION

Taking into account the fact that in the future such pandemics are likely to come and return and have a negative impact not only on the economy of the country, but also on the world economy, the implementation of the above proposals and recommendations during the crises will serve to socio-economic support of the population of Uzbekistan.

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PROBLEMS AND PROSPECTS FOR DEVELOPMENT OF THE OIL AND GAS INDUSTRY IN THE REPUBLIC OF UZBEKISTAN

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ABSTRACT

The article identifies and discusses the problems and prospects for the development of the oil and gas industry in the Republic of Uzbekistan. The analysis of the problems that have the greatest negative impact on the development of the industry, developed proposals for overcoming them and assessed the prospects for the development of the industry as a whole.

KEY WORDS: *problems; prospects; oil; gas; industry; The Republic of Uzbekistan.*

DISCUSSION

The oil and gas industry of Uzbekistan is one of the most important industries in the country. The oil and gas industry includes a full production cycle: from production to delivery to consumers of finished products. The oil and gas industry is managed by Uzbekneftegaz, which is responsible for a number of large companies that produce, process, transport and sell oil and gas products.

Under the chairmanship of the President of the Republic of Uzbekistan Shavkat Mirziyoyev, on January 25, 2018, a meeting was held on the efficiency of exploration and production in the oil and gas industry, the state of ensuring domestic demand for fuel and lubricants, and the industry's challenges for the future. It was noted at the meeting that more than half of the investments attracted to the economy of our country are in the oil and gas industry, and every dollar spent should have an economic effect. These words show how important the role of the oil and gas industry in the economy of the republic. [1]

Despite the fact that Uzbekistan is a leading producer and gas exports (ranked 16th among countries in gas production with production of 56.3 billion m³ in 2019 according to British Petroleum), within the country there is a constant increase in prices for natural gas and petroleum products. [2]

In 2018, there was another jump in prices, and the increase in energy prices was discussed at a government meeting with the participation of

Uzbekneftegaz, Uzbekenergo and Uzneftmahsulot companies. Energy suppliers explained the need to increase tariffs due to growing losses in production and sales.

The decline in oil production in Uzbekistan continues for several years. According to Uzbekneftegaz, over the past 10 years, natural gas production at the company's enterprises has decreased by 1.4 times, or from 59 billion cubic meters in 2007 to 42.3 billion cubic meters in 2017; oil — by 3.8 times, or from 3 to 0.8 million tons; gas condensate — from 1.8 to 1.4 million tons, or by 28%. [3]

Depletion of reserves of the main fields, such as Kokdumalak, Gazli, Shurtan group, and Dengizkul, is one of the main reasons for the decline in production volumes. According to calculations of Uzbekneftegaz JSC, the cost of gas production has increased from the estimated \$ 3.16 since 2000 by 1,000 cubic meters to \$ 20 in 2018, due to increased investment in exploration, measures to maintain production at old fields and the commissioning of new reserves.

Depletion of reserves was observed not only in the gas industry, but also in the oil industry of Uzbekistan. The decline in oil production continues. So, if in 2017 it amounted to 806 thousand tons (a drop of 6.3%), in 2018 – 746.4 thousand tons (a decrease of 8.2%). In January-February 2019, compared to the same period in 2018, the Republic of Uzbekistan reduced oil and gas condensate



production by 5.3% (to 115.5 thousand tons) and 2.5% (more than 344.8 thousand tons), respectively. [4]

In the Republic of Uzbekistan, there are three major refineries aimed at refining oil – Ferghana, Alty – Aryk and Bukhara refineries. The annual capacity of these plants is about 11 million tons of oil. Over the past ten years, due to the lack of raw materials, these plants have not been loaded enough, in some years the load did not even reach 50 % of the total capacity.

Despite the decline in oil production, Uzbekistan is increasing its production of petroleum products, mainly due to imports of oil and gas condensate from countries such as Russia, Kazakhstan and Turkmenistan. Import of petroleum products is one of the problems of the oil industry of Uzbekistan, which is the reason for the increase in prices for petroleum products, including transportation, logistics and other costs. On the other hand, the Ministry of Finance of the Republic of Uzbekistan explains the increase in prices for petroleum products as a step to attract private investors to these industries, which confirms the need to increase tariffs to the break-even point, which allows investing in the modernization of production facilities.

So, the main characteristic problems of the oil and gas industry are:

- Slowing of the growth rate and subsequent decline in oil and gas production;
- Low rates of implementation of innovative technological developments;
- The physical deterioration of the gas distribution system and the allowable losses in the delivery of gas to consumers;
- A high degree of deterioration of the key assets of the oil and gas processing industry, which leads to a decrease in the quality of oil products and products obtained from gas.

Due to the fact that imperfect outdated technologies are used at oil refineries, the share of deepening processes (catalytic cracking, coking, hydrocracking) in the technological scheme of oil refining is small, and the level of conversion of oil raw materials into more valuable products of processing is also low.[5]

Taking into account these problems, the oil industry can currently produce petroleum products of acceptable quality, but, nevertheless, still lag behind the best world samples. The problem of rapid renewal and modernization of outdated equipment, technological machines and separate processes is one of the most important at oil refineries in Uzbekistan. In order to solve the problems, new technologies and equipment are needed, as well as the replacement of backward technological processes with more

advanced and environmentally friendly and waste-free oil refining processes. In order to attract foreign direct investment to modernize and load the production capacity of Ferghana oil refinery LLC, ensure sustainable development and increase the production and export potential of the oil and gas industry through the introduction of advanced technologies, the decree of the President of the Republic of Uzbekistan PD-4275 of April 10, 2019 was adopted. Work has started in this area, and the joint venture Jizzakh Petroleum has started upgrading the Ferghana oil refinery for \$ 300 million. And \$ 1.3 billion has been allocated for the modernization of the Bukhara oil refinery.

It should be noted that, in the past 2017-2018 the volume of gas production increased by 10 percent, the supply of natural gas to the population - by 15 percent, liquefied gas - 1.6 times. During the same period, oil refineries produced an additional 204 thousand tons of oil products, fully satisfied the domestic market's demand for gasoline. Given the growth in hydrocarbon consumption, it is planned to invest almost \$ 9.8 billion in the industry during 2019-2030, including \$ 3.5 billion for exploration and \$ 6.3 billion for increasing natural gas production. For the further development of the oil and gas industry, expansion of geological exploration and production of hydrocarbons is envisaged. To this end, at the expense of internal resources, work has been intensified on the most promising areas in the Bukhara-Khiva, Ustyurt, Surkhandarya and Fergana regions. Together with the world's leading oil and gas companies, geological exploration is being carried out on little-studied investment blocks. Ministry of Energy Taking into account the growth in consumption of hydrocarbons, during 2019-2030 plans to invest almost \$ 9.8 billion in the industry, including \$ 3.5 billion for exploration and \$ 6.3 billion to increase natural gas production. It is planned to modernize the main gas transmission system with the introduction of a monitoring and control system for natural gas flows (SCADA). The petrochemical direction is actively developing, aimed at the production of products with high added value. A project to expand the Shurtan gas-chemical complex is at the implementation stage, as a result of which it is planned to additionally produce 280 thousand tons of new grades of polyethylene and 100 thousand tons of polypropylene. The implementation of these and other tasks will make it possible to increase the deep processing of natural gas by six times by 2030. [6]

The prospects for the development of the oil and gas industry in Uzbekistan can be considered sufficient for rapid and high-quality growth. This is due to the presence of a large volume of natural gas. That is why in the future it is expected to open new



fields that will increase the amount of oil produced in the country, which will lead to its effective development. At the same time, the oil and gas industry in Uzbekistan is constantly controlled by the state. As a result, it consistently implements the latest and modernized technologies and innovations, which leads to easier extraction of energy resources and a reduction in the time spent on production.

The Ministry of energy of Uzbekistan is constantly passing a lot of bills aimed at stimulating the introduction of modern methods in the processes of oil production that can cope with almost all the problems associated with the domestic oil industry.

In order to achieve the goals and solve key problems, it is necessary to do the following:

- Diversification of logistics routes of the sphere, determination of transport corridors and tariffs that guarantee a reduction in the cost of importing raw materials and exporting products, saving energy consumption and expanding alternative energy sources;

- To intensify scientific and technological developments to further improve the quality characteristics of petroleum products;

- Take all measures to maximize the processing of raw oil and natural gas by introducing technological production processes with minimizing the amount of waste received;

- Pay special attention to the advanced development of production of raw materials for the oil and gas chemical industry;

- Maximize the efficiency of the applied technological processes by modernizing existing production facilities and using more advanced technological schemes, as well as by developing and then implementing intensive energy - and resource-saving technologies using various types of catalysts;

- Actively implement technologies that allow increasing the volume of processing of natural gases, gas condensates and other alternative sources from which it is possible to obtain hydrocarbons and motor fuels;

- To develop high and medium pressure gas distribution systems in cooperation with foreign companies, transfer of vehicles to gas fuel;

- Increasing the culture of rational use of energy resources among consumers;

- Meeting the growing needs of consumers in the fuel and energy industry at affordable competitive prices that ensure a return on investment, providing for the modernization and reconstruction of existing enterprises in the fuel and energy industry, the construction of new facilities based on highly efficient technologies for the production and processing of energy resources, improving and automating the system of accounting and control of electricity and natural gas at all stages of gas supply,

diversification of fuel and energy resources with the development of the use of renewable energy sources, implementation of appropriate geological and technical measures (aimed at increasing the reserves of hydrocarbons in the subsurface and increasing their production). [7] [8]

In conclusion, it should be noted that further economic growth, improving the quality of life of the population and strengthening the country's energy security depend on the dynamic development of the fuel and energy industry of the Republic of Uzbekistan.

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THE INFLUENCE OF LITERARY AND RHETORICAL TRADITIONS OF CLASSICAL LANGUAGES ON THE BORROWING PROCESS IN THE HISTORY OF ENGLISH LEXICOGRAPHY

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ABSTRACT

The article is devoted to the problem of the formation and replenishment of the vocabulary of the English literary language and the language of philosophy, in particular, as an important factor and reserve of conscious language creation. The author believes that it was the latter that characterized the searches of the authors of the research period, especially in the 16th century, in the field of the lexical composition of the language and its replenishment for the needs of the nascent and developing styles and genres of English national literature and, first of all, the style of philosophical prose.

KEYWORDS: *purism, classical, rhetoric, sphere, improvement, term, historical.*

ВЛИЯНИЕ ЛИТЕРАТУРНО-РИТОРИЧЕСКИХ ТРАДИЦИЙ КЛАССИЧЕСКИХ ЯЗЫКОВ НА ПРОЦЕСС ЗАИМСТВОВАНИЯ В ИСТОРИИ АНГЛИЙСКОЙ ЛЕКСИКОГРАФИИ

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Аннотация. Статья посвящена проблеме становления и пополнения словарного состава английского литературного языка и языка философии в особенности, как важный фактор и резерв сознательного языкотворчества. Автор считает, что именно последнее характеризовало искания авторов периода исследования, особенно в XVI веке, в области лексического состава языка и его пополнения для нужд зарождающихся и развивающихся стилей и жанров английской национальной литературы и, в первую очередь, стиля философской прозы.

Ключевые слова: пуризм, классический, риторика, сфера, совершенствование, термин, исторический.



Введение

Проблема становления различных функциональных стилей, включая английский научный язык, изучена весьма поверхностно. Необходимость исторических исследований в этой области подчеркивалась не раз ещё акад. В.В. Виноградовым. Он отмечал, что "историзм - основа правильного понимания явлений" [7, с.5]. Это обстоятельство обязывало нас обратиться к эпохе становления английского национального литературного языка и с этой точки зрения выявить стилистические элементы становления научного стиля в литературе Англии [4, с.193].

Особо следует упомянуть о том, что в развитии и становлении национального английского литературного языка велико влияние литературной и риторической традиции классических языков – латинского и греческого – на языковую практику эпохи. В XVI веке, в пору расцвета пуризма, в английском обществе, особенно в сфере языка, наметились два диаметрально противоположных взгляда на развитие и совершенствование лексики английского национального языка:

- 1) сохранение латинского языка как языка науки и философии и
- 2) распространение английского языка на все сферы человеческой деятельности.

Многое в риторике Англии XVI-XVII веков, как показывает В. Хауэлл, было связано так или иначе с риторикой Древних Греции и Рима, а учение о риторике, к тому же обогащенное и дифференцированное в средние века в отношении понятийного аппарата, не могло не влиять на науку о языковой теории и практике [5]. Литература в основном философского характера того периода, как показывает анализ, изобилует терминами классического происхождения, например, в трудах Г. Вильсона ("Правило разума, содержащее искусство логики, изложенное на английском языке", 1551, "Искусство риторики", 1553), Р. Шерри ("Трактат о фигурах и тропах", 1550), а также в многочисленных трудах Ральфа Левера, Томаса Мора, Френсиса Бэкона, Джона Локка и др.

Эти исторические факты имеют прямое отношение к проблеме развития и пополнения словарного состава английского языка и языка философии в особенности, потому что они являются важным резервом сознательного языкотворчества, которое характеризовало искания авторов, особенно в XVI веке, в области лексического состава языка и его пополнения для нужд зарождающихся и развивающихся стилей и жанров английской национальной

литературы и, в первую очередь, стиля философской прозы [9, с.17-39; 50-58].

Методика и методология исследования

В статье мы придерживаемся этимологического, синхронно-диахронического анализа, поскольку такой анализ этой систематики в ее эволюции в рамках значительных научно-культурных традиций предполагает системно-контекстуальное исследование и их ключевых понятий и категорий, а также выражающих их терминов, выявление и уяснение тех трансформаций, которые они претерпевали в ходе своего исторического развития. Поскольку новые слова появлялись, прежде всего, в философских трудах, (а затем и фиксировались в лексикографических источниках) для обозначения, наименования реалий и понятий, доселе незнакомых национальному английскому сознанию, постольку анализу, подвергаются слова, заимствованные из других языков и смысловое содержание которых в высшей степени абстрактно. Примеры для лингвистического анализа были взяты в основном из наиболее авторитетного английского историко-этимологического словаря - The Shorter Oxford English Dictionary on Historical Principles (Oxford, 1968.), затем сверялись по Longman Dictionary of Contemporary English. Third edition. Longman Dictionaries (1985) и The Shorter Oxford English Dictionary on Historical Principles. Third edition (1968) на предмет адекватности семантического содержания слов.

Анализ и выводы

Содержательная сторона, как известно, является основой для изучения лексики языка. Лексический состав английского языка требовал расширения для того, чтобы стать орудием выражения новых и усовершенствованных научных понятийно-логических систем. Потребность языка науки и философствования в новых словах-понятиях была велика. Она могла быть удовлетворена либо за счет внутренних ресурсов, либо за счет внешних, то есть заимствований новых лексических единиц и, прежде всего, из классических языков - латыни и греческого. Актуальной становится проблема не только пополнения языка научной, философской лексикой, но и, в более широком плане, обогащения лексики, необходимой для написания научно-философских работ непосредственно на английском языке.

Заимствование иностранных слов как факт объективно-исторический свойственно в



той или иной степени всем языкам; это - фактор их эволюции, важный источник развития языка, так как лексика представляет собой область знания, в наибольшей степени "открытую" для всякого рода внешних влияний. Это именно та область, в которой находят отражение все изменения, происходящие в социальной жизни общества. Поскольку новые слова появились в философских трудах, прежде всего, для обозначения, наименования реалий и понятий, доселе незнакомых национальному английскому сознанию, постольку анализу, подвергаются слова, заимствованные из других языков и смысловое содержание которых в высшей степени абстрактно.

Анализ показал, что введению, в определенной степени ассимиляции и толкованию новых слов, способствовали в основном целевые установки авторов. При этом применяются следующие способы:

1) толкование семантики новой лексической единицы в широком контексте, не через показ употребления в различных контекстах, а через экспликацию сущности (природы) самого явления или же посредством логического определения понятия, обозначаемого данной лексической единицей: "Placabilite is no little occasion moved to be angry, and not withstandinge either by his owne reason ingenerate or by consaile perswaded he omitteth to be revenged, and often times receiveth the transgressour ones reconciled in the limits and boundes whiche honestie hath appoynted in spekyng and doinge.." (T.Ellyot. Govern); "...moderation is the limits and boundes whiche honestie hath appoynted in spekyng and doinge.." (T.Ellyot.Govern.327); "...abstinence is wherby a man refrayreth from any thyng, whiche he may., take, for a better purpose.." (T.Ellyot.Govern.305); "...in the fyrste (volume) shall be comprehended the best forme of education or bringing up a noble children." (T.Ellyot.Govern.24); "wherein philosopher ought carefully and actively to have inquired of the strength and energy of custom, exercise, habit, education, imitation, emulation.." (F.Bacon.De Augm. VII.74).

2) Вторым способом толкования новых слов является объяснение семантики слова путем соединения значения двух других, уже известных и бытующих в языке слов. Таким образом, истолковываются слова, обозначающие не четко определенные понятия, диапазон значения которых довольно широкий, и слово может, поэтому, быть неправильно истолковано. Объяснение имеет целью конкретизацию параметров понятия, установления его границ, для чего берутся два

противоположных по значению слова или понятия, например: "Nowe trust I have sufficiently expounded the vertue called maturitie, which is the meane or mediocritie between slowthe and celerity, communely called spedinesse..." (T.Ellyot.Govern.215).

В ряде случаев - правда реже - авторы для наглядности объяснения прибегают, к примеру, противопоставления объясняющего слова и лексической единицы, являющейся его антонимом как, например, при толковании слова placability "благодущие, кротость" Т.Элиот пишет: "The vertue thereof is best known by the contrarye which is ..., called vulgarely wraethe..." (T.Ellyot. Govern.55).

Новое заимствование acceleration -1531- [ad.lat.accelerationem, accelera-tus, accelerare, f.ac=ad+celer] "акселерация, ускорение", введенное Т.Элиотом, объясняется семантическим объемом исконно германского слова haste, которое, таким образом, ставится в синонимическое отношение с обозначаемым словом. Или еще: Contractio, onis, feare, a shrinking or gathering together, a frowning, a contraction or shortening, a drawing in, a faintyng of courage" (T.Ellyot. Govern. 60).

Здесь заимствованное слово contraction - 1582 (ad.F.,ad.lat. contracti-onem) "сокращение" толкуется путем постановки синонима shortening "уменьшение". Или: "A compeller, or constrainer. Coactor" (Baret); "Кто-то заставляющий или принуждающий. Со-деятель"; "Cosmographie, a cosmographer, or de-scriber of the world" (Florio).

Отличительной особенностью здесь является то, что авторы словарей не дают истолкования сущности обозначенного заимствованным словом явления или понятия, а подбирают знакомое для национального сознания слово, причем и в роли интерпретирующих слов могут выступать как исконно германские, так и заимствованные, но уже бытующие и ассимилированные национальным языком слова.

Иногда авторы-словотворцы дают мотивировку употребления того или иного слова, советуя при этом выбрать одну из предложенных лексических единиц. Например, Путтенгем объясняет hyperbole "гипербола" - 1529 (a.Gr. hunepboly excess, exaggeration) "гипербола, преувеличение" двумя созданными словами overreacher "хитрец" и loud Iyer "обманщик, вун": "Hyperbole or the overreacher otherwise called loud Iyer ... I for his immoderate excesse call him the overreacher right with his original or loud Iyer and we thinke not amisse..."



Тенденцию развития и пополнения состава терминологической лексики в системе философского лексикона и конкретизации философских понятий в анализируемую эпоху можно сформулировать следующим образом: введению, усвоению и интерпретации инноваций способствовали, прежде всего, целевые установки авторов. Более всего неологизмы вводились:

а) толкованием смысла нового слова в широком контексте, т.е. посредством объяснения сущности самого явления или же путем логического определения понятия;

б) объяснением смысла нововведения путем соединения значения двух других обыденных слов;

в) путем противопоставления словарных дефиниций;

г) путем мотивировки употребления слова.

Таким образом, эти тенденции имеют непосредственное отношение к проблеме развития и обогащения словарного состава английского языка и языка философии в особенности.

Заключение

Итак, резюмируя, можно констатировать, что поскольку в сфере теоретического мышления начинается формирование нового понятия причинности времени и пространства, а на его основе складываются и принципиально новые схемы объяснения явлений природы, а затем и человеческой деятельности, то модифицируется и содержание категорий познавательной деятельности. В контексте каждой культуры на разных ее этапах можно выделить и особый тип противоположных тенденций - множество стилевых образований в пределах культуры одной эпохи. В противоречивых формах таких явлений в истории философской мысли английского эмпиризма и рационализма происходило формирование нового интегрального мировоззрения, развитие интеллектуального ядра культуры эпохи исследуемого периода, трансформация центра тяжести, преобразование культурных контекстов, изменение ценностных ориентаций. Поскольку высокий мир античной культуры открыл гуманистам и философам Возрождения истинную ценность не небесной, а земной жизни и поставил человека в центр космоса.

Наиболее полный охват всех сторон жизни осуществляется в научной и художественной литературе эпохи, что делает эти наиболее значительные произведения авторов средством реконструкции духовной атмосферы самой эпохи, характера мировосприятия и

миропонимания, способов миропознания мыслителя. Их творчество не только показательно для своего периода, но и сыграло значительную роль в систематизации выражения научных понятий средствами национального языка.

Возрастающий уровень философского анализа и мирочленения находит свое отражение в постепенном увеличении числа терминологической лексики в системе философского лексикона, а также в развитии отношений между значениями терминов в рамках терминотворчества отдельных мыслителей. В содержательной структуре текстов философского порядка меняются позиции терминов, прослеживается их адекватность.

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MATHEMATICAL MODELING WITH THE SPECTRAL-GRID METHOD OF THE AMPLITUDE OF THE STREAM FUNCTION FOR A PLANE POISEUILLE FLOW

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ABSTRACT

To date, extensive experimental material has been accumulated on the behavior of flows in the zone of transition of a laminar flow to a turbulent one, and the available information indicates the great complexity of this phenomenon. The solution to the problem of hydrodynamic stability is of great practical importance, since all hydrodynamic characteristics of a motion essentially depend on whether this motion is laminar or turbulent. The application of numerical methods to the solution of the basic equations - the Navier-Stokes equations - for large Reynolds numbers runs into serious difficulties. They are mainly associated with the presence of a small parameter at the highest derivative and, as a consequence, the appearance in the solution of regions of strong spatial inhomogeneity. Therefore, the requirements for the approximation properties of numerical methods increase dramatically. The stability problem for single-phase hydrodynamic systems is reduced to an eigenvalue problem for the Orr-Sommerfeld equation. The existing methods for modeling the stability problem make it possible to calculate with good accuracy individual eigenvalues of the stability problem and obtain a solution in the regions of inhomogeneity. However, when calculating the spectrum of eigenvalues, as well as own functions, their efficiency turns out to be insufficient. The Orr-Sommerfeld equations contain a small parameter at the highest derivative; therefore, considerable difficulties arise in obtaining approximate solutions close to exact ones.

KEYWORDS: hydrodynamic stability, Reynolds number, wave number, eigenvalues, own functions, single-phase, Orr-Sommerfeld equations, spectral-grid method, high accuracy, efficiency, efficiency, laminar and turbulent flow

INTRODUCTION

Viscosity reflects the property of a liquid to resist the relative movement of adjacent liquid layers. Separate concentric layers slide over one another, and moreover so that the speed everywhere has an axial direction. This kind of movement is called laminar flow (from the Latin word "lamina" - layer) [1-5]. Due to viscosity, liquid particles close to the walls flow more slowly than particles farther from the walls. The flow occurs in an orderly manner in the form of layers moving relative to each other. (layered or laminar flow). However, observations show that at higher Reynolds numbers, the flow ceases to be ordered, i.e. becomes turbulent. The first systematic studies of both, such different forms of flow — laminar and turbulent — were carried out by O. Reynolds [6]. He also carried out an experiment with a colored trickle. Until now, as long as



the flow remains laminar, the colored liquid introduced into it moves in the pipe in the form of a sharply outlined trickle, but as soon as the flow becomes turbulent, this trickle spreads out and almost uniformly colors the entire liquid moving in the pipe. This shows that in a turbulent flow, transverse motions are superimposed on the main fluid flow, which occurs in the direction of the pipe axis, i.e. movements occurring in a direction perpendicular to the pipe axis. These transverse movements lead to mixing of the moving fluid. As a result of his research, O. Reynolds discovered the similarity law, also named after him. According to the Reynolds similarity law, the transition of a laminar flow to a turbulent one always occurs at approximately the same Reynolds number $Re = \rho UL/\mu$, where ρ is the density of the liquid or gas, μ is the viscosity, U is the characteristic velocity of the main flow, and L is the characteristic length. The Reynolds number at which the transition of a laminar flow to a turbulent one occurs is called the critical Reynolds number Re_{kp} . Therefore, those flows for which $Re < Re_{kp}$ are laminar and the same flows for which $Re > Re_{kp}$ are turbulent. Theoretical studies aimed at explaining the above-described phenomenon of the transition of a laminar flow to a turbulent one have been rocking already in the last century. All these studies are based on the idea that laminar flow is subject to some small disturbances. Each theory sought to trace the development in time of perturbations imposed on the main flow, and the form of these perturbations was specially determined in each individual case. The decisive issue to be resolved was to determine whether the disturbances were dying out or growing over time. Damping of disturbances with time should mean that the main flow is stable and vice versa, the growth of disturbances with time should mean that the main flow is unstable and, therefore, a transition to a turbulent flow is possible. In this way, they tried to create a theory of the stability of a laminar flow, which would theoretically calculate the critical Reynolds number Re_{kp} for a given laminar flow. It is now generally accepted that turbulence is a more natural state of fluid flow, and laminar flow occurs only when the Reynolds number is so small that the deviation from this flow tends to attenuate.

MAIN PART

The study of the hydrodynamic stability problem is reduced to the numerical modeling of the generalized eigenvalue problem for the Orr-Sommerfeld equation [6]:

$$\frac{1}{ik Re} D^2 \psi - \left((U(\eta) - \lambda) D - \frac{d^2 U}{d\eta^2} \right) \psi = 0, \quad (1)$$

$$\psi_0 < \psi < \psi_1$$

$$\psi(\eta_0) = \frac{d\psi}{d\eta}(\psi_0) = 0, \psi(\eta_1) = \frac{d\psi}{d\eta}(\psi_1) = 0 \quad (2)$$

with homogeneous boundary conditions (2), which mean impermeability and adhesion requirements. Here

$D = \frac{2}{d\psi^2} - k^2$ is the differential operator, $U(\psi)$ is the velocity profile of the main flow, ψ is the

coordinate directed across the main flow, k is the wavenumber, Re is the Reynolds number, $\psi(\eta) = \psi_r + i\psi_i$ is the amplitude of the stream function for perturbations, $\lambda = \lambda_r + i\lambda_i$ are the eigenvalues of the problem, where λ_r is the phase velocity of the wave disturbance, λ_i is the growth coefficient. If $\lambda_i > 0$, then the flow is unstable, if $2\lambda_i < 0$, then it is stable. If $\lambda_i = 0$, then the oscillations are neutral stable. From the point of view of the problem of hydrodynamic stability, it is of interest to find the eigenvalues of problem (1) - (2) [5-10]. At the same time, there is another independent problem, the study of the behavior of the own functions of the problem (1) - (2). In this paper, we study the dynamics of changes in the real and imaginary parts of the own functions $\psi(y) = \psi_r + i\psi_i$.

For the numerical simulation of the problem (1) - (2), we use the spectral-grid method (SSM) [15-23]. For this, the interval of integration $[\eta_0, \eta_N]$ is divided into a grid $\eta_0 < \eta_1 < \dots < \eta_N$ and thus we obtain N different elements:

$$[\eta_0, \eta_1], [\eta_1, \eta_2], \dots, [\eta_j, \eta_{j+1}], \dots, [\eta_{N-1}, \eta_N],$$

Differential equation (1) on each of these elements takes the form

$$D^2 \psi_j - ik Re [U_j(\eta) - \lambda] D - U_j''(\eta) \psi = 0, \quad (3)$$

$$j = 0, 1, 2, \dots, N$$



Boundary conditions (2) are written at the points η_0 and η_N :

$$\psi_1(\eta_0) = \frac{d\psi_1}{d\eta}(\eta_0) = 0, \psi_N(\eta_N) = \frac{d\psi_N}{d\eta}(\eta_N) = 0 \quad (4)$$

at the points of the partition, we require the continuity of the solution to equation (3) and its derivatives up to the third order. These conditions are of the form

$$\psi_j^{(t)}(\psi_j) = \psi_{j+1}^{(t)}(\psi_j), t = 0, 1, 2, 3; j = 1, 2, \dots, N-1. \quad (5)$$

where t indicates the order of the derivative. We represent the solutions ψ_j of equation (3) - (4) as a series in the Chebyshev polynomials of the first series. To do this, we map each element $[\eta_j, \eta_{j+1}]$ on the interval $[-1, +1]$ using the following replacement of the independent variable:

$$\eta = \frac{m_j}{2} + \frac{l_j}{2} y, m_j = \eta_j + \eta_{j-1}, l_j = \eta_j + \eta_{j-1} \quad (6)$$

l_j denotes the length of the j th element. After this transformation, equation (3) takes the form

$$D_j^2 \psi_j - ik_j \operatorname{Re}_j [U_j((y) - \lambda) D_j - U_j(y)] \psi_j = 0, \quad (7)$$

$$j = 1, 2, \dots, N$$

where

$$D_j = \frac{d^2}{dy_j^2} - k_j^2, k_j = \frac{l_j}{2} k, \operatorname{Re}_j = \frac{l_j}{2} \operatorname{Re}$$

From conditions (4) - (5) we have

$$\psi_j(-1) = 0, \frac{d\psi_1}{dy}(-1), l_j^{-t} \psi_j^{(t)}(+1) = l_{j+1}^t \psi_{j+1}^{(t)}(-1),$$

$$t = 0, 1, 2, 3; j = 1, 2, \dots, N-1, \quad (8)$$

$$\psi_N(+1) = 0, \frac{d\psi_N}{dy}(+1) = 0$$

We will seek an approximate solution to problem (7) - (8) at each of the elements in the form

$$\psi_j(y) = \sum_{n=0}^{p_j} a_n^{(j)} T_n(y),$$

$$U_j(y_1^{(j)}) = \sum_{n=0}^{p_j} b_n^{(j)} T_n(y_1^{(j)}) \quad (9)$$

$$y_1^{(j)} = (\cos(\pi l / p_j), l = 0, 1, 2, \dots, p_j; j = 1, 2, \dots, N$$

where $T_n(y)$ are Chebyshev polynomials of the first kind, $y_1^{(j)}$ are their nodes, p_j is the number of polynomials used to approximate the solution on the j -grid element. The expansion coefficients $b_n^{(j)}$ for the function $U_j(y)$ in (9) are determined by the following inverse transformation [7-12]:

$$b_n^{(j)} = \frac{2}{p_j c_n} \sum_{l=0}^{p_j} \frac{1}{c_l} U_j(y_1^{(j)}) T_n(y_1^{(j)}), n = 0, 1, \dots, p_j,$$

$c_0 = c_{p_j} = 2$, at $m \neq 0, p_j, j = 1, 2, \dots, N$.

For the convenience of presenting the SSM, we write equation (7) in operator form, i.e.

$$L_j \psi_j = 0, j = 1, 2, \dots, N, \quad (10)$$

where L_j is the differential operator defined by the formula

$$L_j = D_j^2 - ik_j \operatorname{Re}_j [U_j((y) - \lambda)] D_j - U_j''(y)$$



Substituting series (9) into equation (10), we require that the left-hand side of (10) on each of the grid elements be orthogonal to the first $(p_j-4)-m$ Chebyshev polynomials, i.e.

$$(L\psi_j, T_n) = 0, n = 0, 1, \dots, p_j - 4, j = 1, 2, \dots, N \quad (11)$$

where $(f, g) = \int_{-1}^{+1} f(x)g(x)(1-x^2)^{-1/2} dx$ is the scalar product on the interval $[-1, +1]$. In addition, we require that the series in Chebyshev polynomials (9) exactly satisfy the boundary conditions and continuity conditions (8). Taking into account the following properties of the Chebyshev polynomials $T_n(\pm 1) = (\pm 1)^n$ and $T'_n(\pm 1) = (\pm 1)^{n-2} n^2$, these conditions are written in the form [22-23].

Thus, to determine $m^- = N(p_j+1)$ unknowns $a_n^{(j)}$ ($n = 0, 1, \dots, p_j, j = 1, 2, \dots, N$), we have $m^- = N(p_j+1)$ equations. These equations are: $N(p_j-3)$ - orthogonality equations (11), $4(N-1)$ - continuity conditions, and 4 boundary conditions. In the general case, when different numbers of Chebyshev polynomials are given on different elements, we obtain $m^- = (p_1 + p_2 + \dots + p_N + N)$ equations for determining the same number of unknowns. It is convenient to write the resulting system in matrix form:

$$(A - \lambda B)x = 0 \quad (12)$$

The complex matrices A and B have a block-diagonal structure, and the vector x contains the coefficients $a_n^{(j)}$ in the expansion (9), i.e.

$$X^T = (a_0^{(1)}, a_1^{(1)}, \dots, a_{p_1}^{(1)}, a_0^{(2)}, a_1^{(2)}, \dots, a_{p_2}^{(2)}, \dots, a_0^{(N)}, a_1^{(N)}, \dots, a_{p_N}^{(N)})$$

It is seen that the matrix is degenerate and contains $4N$ zero rows corresponding to the boundary conditions and continuity conditions, since they do not depend on λ . The corresponding rows of the matrix will contain integers obtained from the values of the Chebyshev polynomials and their derivatives up to the third order at the points -1 or 1 . It is impractical to store these integer elements in the complex matrix; moreover, in the complex matrix, the elements corresponding to these rows are equal to zero. Therefore, when compiling a program, complex matrices are described as follows:

$A(m^- - 4N, m^-), B(m^- - 4N, m^-)$ where m^- is the total number of equations in the algebraic system (12), and N is the number of grid elements in the SSM.

With the help of elementary transformations of columns of matrices and system (12) we will bring to the form [16-23]

$$(AQ - \lambda BQ)(Q - 1x) = 0, \quad (13)$$

or

$$(AQ - \lambda BQ)Y = 0, \quad (14)$$

where $Y = Q^{-1}x$,

$$Y^T = (y_0^{(1)}, y_1^{(1)}, \dots, y_{p_1}^{(1)}, y_0^{(2)}, y_1^{(2)}, \dots, y_{p_2}^{(2)}, y_0^{(N)}, y_1^{(N)}, \dots, y_{p_N}^{(N)})$$

and Q is the corresponding non-degenerate transformation [15-23].

With such a transformation Q , the zero rows of the matrix B do not change, and the nonzero rows are transformed according to the transformation Q . As a result, a number of equations in system (14) become autonomous:

$$1 \cdot y_0^{(1)} = 0, 1 \cdot y_1^{(1)} = 0, 4 \cdot y_2^{(1)} = 0, 24 \cdot y_3^{(1)} = 0$$

$$1 \cdot y_0^{(2)} = 0, 1 \cdot y_1^{(2)} = 0, 4 \cdot y_2^{(2)} = 0, 24 \cdot y_3^{(2)} = 0$$

.....

$$1 \cdot y_0^{(N)} = 0, 1 \cdot y_1^{(N)} = 0, 4 \cdot y_2^{(N)} = 0, 24 \cdot y_3^{(N)} = 0$$

From this we can see that the first four components of the eigenvector from each grid element are equal to zero,



with 43 grid points. In [9], it was found

$$\lambda = 0.237413 + 0.003681i.$$

using 50 terms of the expansion in symmetric functions.

The results obtained by the spectral-grid method with an accuracy of 7 digits are obtained when using in the approximation such a number of polynomials, which is more than 2 times less than the number of grid nodes in finite-difference methods required to obtain the same accuracy. Taking into account that the matrix methods for finding eigenvalues used both in [9] and [24] require time proportionally to the cube, and memory is the square of the number of polynomials (functions, grid points), the spectral-grid method is much superior to other methods in efficiency.

The eigenvalues and own functions of the Orr-Sommerfeld equation were calculated for various Reynolds numbers lying outside ($\lambda_i < 0$) on ($\lambda_i = 0$) and inside ($\lambda_i > 0$) the neutral curve ($\lambda_i = 0$). The results are shown in tables 1; 2, in table 2 for comparison, some results of work [25] are given.

Table 1

Re	K	λ_r	λ_i
10000	1	0.2375265	0.0037397
6000	1.02071	0.2622475	0.0003575
5772.22	1.02056	0.2640017	0.0000000
5772.12	1.02071	0.2640200	-0.0000002
5250	1.02071	0.2683958	-0.0009652
6000	0.848	0.2398535	-0.0050281
6000	0.875	0.2436641	-0.0033966

Table 2

Re	K	Article [25]	
		λ_r	λ_i
6000	1.02071	0.2623	0.0003
5772.12	1.02071	0.26402	0.000
5250	1.02071	0.2684	-0.0010

To numerically simulate the amplitude of the stream function for perturbations, one should calculate the vector $Q^{-1}x$ for system (13), and thus, the components of the eigenvector

$$X^T = (a_0^{(1)}, \dots, a_{pN}^{(N)}),$$

Then, using these components, sums (9) are calculated and the amplitude of the stream function for disturbances in the Poiseuille flow is determined. The graphs of the stream function amplitude for disturbances of an unstable symmetric mode for the Poiseuille flow at $Re = 6 \cdot 10^3$ and $k = 1.02071$ in Fig. 1 and at $Re = 10^4$ and $k = 1$ in Fig. 2

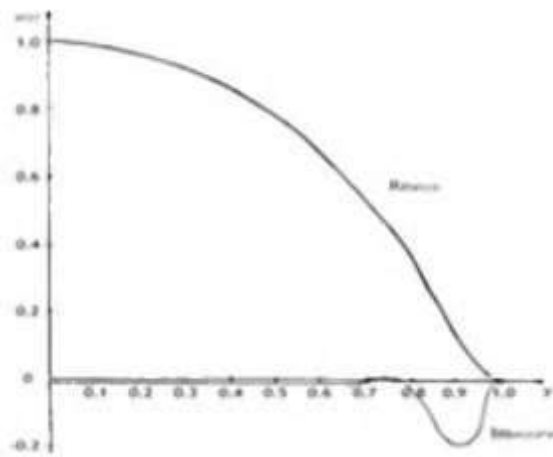


Fig. 1 Change in the amplitude of the stream function at $Re = 6 \times 10^6$ and $k=1.02071$

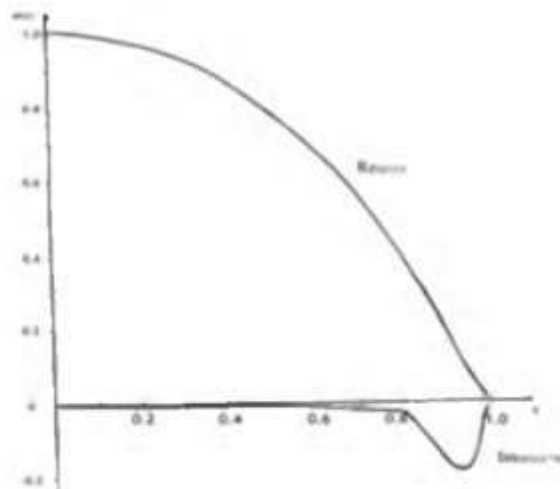


Fig. 2 Change in the amplitude of the stream function at $Re = 10^4$ and $k=1$



The calculations performed once again demonstrate the high accuracy and efficiency of the spectral-grid method.

CONCLUSIONS

1. An algorithm of the spectral-grid method for calculating the amplitude of the stream function has been developed. [6]
2. The eigenvalues and own functions of the plane Poiseuille flow are obtained for various Reynolds numbers and wave numbers. It is shown that the spectral-grid method is very effective in comparison with other methods for solving the problem of hydrodynamic stability.
3. The amplitudes of the stream function for disturbances are investigated and their graphs are plotted.

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MATHEMATICAL MODELING OF NONLINEAR THERMAL PROCESSES

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ABSTRACT

When describing most real physical processes, nonlinear partial differential equations are obtained. The study of the general properties of nonlinear equations and methods for their solution is an urgent direction in the field of computational technology. Having interesting facts and a variety of effective methods for researching and solving nonlinear equations, this area of applied mathematics still does not have such a solid theoretical foundation as the theory of linear equations. Among the systems of nonlinear partial differential equations, the most common are quasilinear equations. But even for these systems at present there is no sufficiently complete theory, there are no general theorems of existence and uniqueness of the solution of the problem. For the numerical solution of quasilinear equations, difference methods or the method of grids are mainly used. It allows one to reduce the solution of a quasilinear partial differential equation to the solution of systems of linear algebraic equations.

KEYWORDS: *Implicit scheme, implicit iteration scheme, number of iterations, number of arithmetic operations, number of grid layers, grid steps, linear and nonlinear difference schemes, thermal conductivity coefficient, quasilinear equation, initial and boundary conditions.*

INTRODUCTION

Many applied problems are described by quasilinear and nonlinear equations of mathematical physics [1-2]. Difference schemes are the main mathematical apparatus for solving such equations [3-4]. The work [5-6] is devoted to the solution of multidimensional problems by the method of fractional steps. Mathematical problems in the theory of systems of quasilinear equations of gas dynamics and difference methods for their solution are presented in [7]. Various approaches to the solution of quasilinear equations are described in [9-13]. In [14], an analytical and numerical study of a one-dimensional boundary value problem with degeneration for a nonlinear heat equation in the case of a power-law dependence of the heat conductivity coefficient on temperature, the solution of which has the form of a heat wave propagating along a cold background with a finite velocity, was carried out. A numerical algorithm based on the boundary element method is applied. The article [15] is devoted to finding invariant solutions of the nonlinear equation of heat conduction without sources and sinks with a power-law dependence of the coefficient of thermal conductivity on temperature. The problem under consideration is reduced to Cauchy problems for ordinary differential equations with a singularity at the highest derivative, for which a theorem on the existence and uniqueness of a solution in the class of analytic functions is proved. In [16], the evolution of a thermal perturbation in a nonlinear medium was studied, the thermal conductivity of which clearly depends on time and is a power function of temperature with an exponent that depends on time, in the presence of volumetric heat absorption in this medium. The physical properties of the process under study, such as the mode of spatial localization and its variety, stable and metastable localization, are qualitatively considered. The problem of the influence of an instantaneous source on the propagation of a thermal disturbance in an isotropic space is considered. In [17], studies of special boundary value problems for a nonlinear parabolic heat equation were carried out. In the case of a power-law dependence of the thermal



conductivity coefficient on temperature, this equation is used to describe the processes of radiant thermal conductivity, filtration of polytron gas in porous soil, and migration of biological populations. In addition, the equation under consideration has specific nonlinear properties that are interesting from both physical and mathematical points of view. For example, the speed of propagation of the disturbances described by him can be finite. It is shown that in this case the original problem can be reduced to the Cauchy problem for a nonlinear ordinary differential equation of the second order. The work [18] is devoted to the construction of iterative difference schemes for the Dirichlet problem for the Laplace equation. The monograph [19] provides mathematical modeling of the problem of hydrodynamic stability described by nonlinear differential equations using the spectral-grid method. The work [20] illustrates the high accuracy and efficiency of the spectral-grid method when solving the nonlinear equation of stability for single-phase flows. Mathematical modeling and numerical solution of the system of nonlinear stability equations for two-phase flows by the spectral-grid method is described in [21-22]. It is of interest to apply difference iterative schemes to solving a quasilinear heat equation when the heat conductivity coefficient is a nonlinear function of temperature (linear, quadratic, and cubic), as well as to substantiate the effectiveness of the method used by the number of arithmetic operations, and to study the method by the number of arithmetic operations depending on the nonlinearity parameter. The authors are not aware of any work on the solution and study of the above issues.

MAIN PART

Consider a boundary value problem for a quasilinear heat equation with nonlinear heat conductivity coefficients

$$\frac{\partial u}{\partial t} = \frac{\partial}{\partial x} \left(k(u) \frac{\partial u}{\partial x} \right) + f(u), \quad 0 < x < 1, \quad 0 < t \leq T, \quad (1)$$

$$u(x, 0) = u_0(x), \quad 0 \leq x \leq 1, \quad (2)$$

$$u(0, t) = \mu_1(t), \quad u(1, t) = \mu_2(t), \quad 0 \leq t \leq T, \quad (3)$$

Here $k(u) = k_0 u^\sigma$ is the coefficient of thermal conductivity, which is a nonlinear function of temperature, $\sigma \geq 1$.

Continuous area

$$\bar{D} = \{0 \leq x \leq 1, \quad 0 \leq t \leq T\}$$

in which the differential problem (1) - (3) is considered, we introduce the difference grid

$$\bar{\omega}_{h\tau} = \left\{ (x_i, t_j), \quad \begin{array}{l} x_i = ih, \quad i = 0, 1, 2, \dots, N, \quad h = 1/N, \\ t_j = j\tau, \quad j = 0, 1, 2, \dots, M, \quad \tau = T/M \end{array} \right\}.$$

In the difference domain, in accordance with the differential problem (1) - (3), we pose the following difference problems [3]:

scheme a):

$$\begin{aligned} \frac{\hat{y}_i - y}{\tau} &= \frac{1}{h} \left[a_{i+1}(\hat{y}) \frac{\hat{y}_{i+1} - \hat{y}_i}{h} - a_i(\hat{y}) \frac{\hat{y}_i - \hat{y}_{i-1}}{h} \right] + f(\hat{y}_i), & 0 < i < N, \\ & & 0 \leq j < M, \\ y_i^0 &= u_0(x_i), & 0 \leq i \leq N, \\ y_0^{j+1} &= \mu_1(t_{j+1}), \quad y_N^{j+1} = \mu_2(t_{j+1}), & 0 \leq j < M. \end{aligned} \quad (4)$$

scheme b):

$$\begin{aligned} \frac{\hat{y}_i - y}{\tau} &= \frac{1}{h} \left[a_{i+1}(\hat{y}) \frac{\hat{y}_{i+1} - \hat{y}_i}{h} - a_i(\hat{y}) \frac{\hat{y}_i - \hat{y}_{i-1}}{h} \right] + f(\hat{y}_i), & 0 < i < N, \\ & & 0 \leq j < M, \\ y_i^0 &= u_0(x_i), & 0 \leq i \leq N, \\ y_0^{j+1} &= \mu_1(t_{j+1}), \quad y_N^{j+1} = \mu_2(t_{j+1}), & 0 \leq j < M. \end{aligned} \quad (5)$$

In schemes a) and b) $\hat{y}_i = y_i^{j+1}$, $y_i = y_i^j$ and the coefficients $a_i(\mathcal{G}) = a(\mathcal{G}_{i-1}, \mathcal{G}_i)$ are calculated



by one of the following formulas

$$a_i(\mathcal{G}) = 0,5[k(\mathcal{G}_{i-1}) + k(\mathcal{G}_i)],$$

$$a_i(\mathcal{G}) = k\left(\frac{\mathcal{G}_{i-1} + \mathcal{G}_i}{2}\right),$$

$$a_i(\mathcal{G}) = \frac{2k(\mathcal{G}_{i-1})k(\mathcal{G}_i)}{k(\mathcal{G}_{i-1}) + k(\mathcal{G}_i)}.$$

The calculation of the temperature wave strongly depends on how these coefficients are calculated.

The theoretical comparison of the difference schemes a) and b) was carried out in [3] and due to the nonlinearity of the scheme b) the expediency of using the following iterative process is indicated:

$$\frac{y_{i-1}^{(s+1)} - y_i^{(s+1)}}{\tau} = \frac{1}{h} \left[a_{i+1}^{(s)}(y) \frac{y_{i+1}^{(s+1)} - y_i^{(s+1)}}{h} - a_i^{(s)}(y) \frac{y_i^{(s+1)} - y_{i-1}^{(s+1)}}{h} \right] + f(y_i^{(s)}), \quad \begin{matrix} 0 < i < N, \\ 0 \leq s < 3, \\ 0 \leq j < M, \end{matrix}$$

$$y_i^0 = u_0(x_i), \quad 0 \leq i \leq N, \quad (6)$$

$$y_0^{(s+1)} = \mu_1(t_{j+1}^{(s+1)}), \quad y_N^{(s+1)} = \mu_2(t_{j+1}^{(s+1)}), \quad 0 \leq j < M.$$

This scheme is linear with respect to the grid function $y^{(s+1)}$.

To find the value of the grid function $y^{(j+1)}$ from the known values of function y^j , when counting according to scheme (6), you need to make several iterations, and when counting according to scheme a), the value of the grid function $y^{(j+1)}$ on a new layer is found immediately.

Since both schemes are absolutely stable and have the same approximation order $O(\tau + h^2)$, it would seem that in this respect scheme a) has an advantage over the iterative scheme (6). However, practical calculations carried out in this work have shown the high efficiency of the iterative scheme (6).

For this reason, the substantiation of the efficiency of the scheme a) and b) when solving the quasilinear heat equation with nonlinear heat conductivity coefficients with different nonlinearities from the point of view of a computational experiment is of great practical importance. The author is not aware of any work oriented towards solving this problem.

It is known that the main criterion for the effectiveness of any numerical method is the number of arithmetic operations. In this article, the efficiency of the scheme a) and b) are compared by the number of arithmetic operations, when the thermal conductivity coefficient is a nonlinear function of temperature with different nonlinearities, i.e. $k(u) = k_0 u^\sigma$, $\sigma = 1, 2, 3$. The high efficiency of the implicit iteration scheme is illustrated (6).

The results of the performed computational experiments show that with an increase in the value of parameter σ , to obtain the same accuracy according to schemes a) and b), scheme b) allows using a so large time step, which, despite the need to perform iterations, this leads to a decrease in the number of arithmetic operations.

It should be noted that difference schemes (4) and (6) are solved using the sweep method. It is known that the execution of the sweep method on one time layer will require $8N$ arithmetic operations, where N is the number of grid nodes in variable X .

To implement scheme a), $Q_1 = 8N * N1$ arithmetic operations are required, the corresponding number of operations for scheme b) and places like $Q_2 = 8N * IT * N2$, where $8N$ is the number of arithmetic operations in the sweep method, $N1$ and $N2$ are the number of time layers according to schemes a) and b), respectively, IT is the number of iterations according to scheme b) in one time layer.



RESULTS AND DISCUSSION

In the region of

$$\bar{D} = \{0 \leq x \leq 1, 0 \leq t \leq T\}$$

where the differential problem (1) - (3) is considered, we introduce the following difference grid

$$\bar{\omega}_{h\tau} = \left\{ (x_i, t_j), \begin{matrix} x_i = ih, i = 0, 1, 2, \dots, N, h = 1/N, \\ t_j = j\tau, j = 0, 1, 2, \dots, M, \tau = T/M \end{matrix} \right\}$$

To carry out a computational experiment, the parameters of the problem are chosen as follows:

$$N = 50, M = 6, T = 0.6, k(u) = k_0 u^\sigma, \sigma = 1, 2, 3.$$

First, consider case $\sigma = 1$, i.e. $k(u) = k_0 u$ thermal conductivity is a linear function of temperature. The steps of the difference grid were chosen as follows $h = 0.02$ and for the scheme a) $\tau = 0.02$, for the scheme b) $\tau = 0.05$. Computational experiments were carried out according to the schemes a) and b) and the results are shown in Table 1. In the case when $\sigma = 1$ and for the chosen grid steps the number of time layers for scheme a) $N1 = 30$, for scheme b) $N2 = 12$.

Table 1 The results obtained according to schemes a) and b).

$x_i \backslash t_j$		0	0.1	0.2	0.3	0.4	0.5	0.6
		0	0.1000	0.2000	0.3000	0.4000	0.5000	0.6000
i=0	a)	0	0.1000	0.2000	0.3000	0.4000	0.5000	0.6000
	b)	0	0.1000	0.2000	0.3000	0.4000	0.5000	0.6000
i=10	a)	0.0400	0.1296	0.3061	0.5654	0.8125	1.0118	1.1712
	b)	0.0400	0.1424	0.3270	0.5596	0.7802	0.9679	1.1253
i=20	a)	0.1600	0.3355	0.5880	0.8468	1.0884	1.2977	1.4714
	b)	0.1600	0.3433	0.5785	0.8208	1.0482	1.2488	1.4205
i=30	a)	0.3600	0.6237	0.8694	1.0847	1.2857	1.4706	1.6331
	b)	0.3600	0.6114	0.8442	1.0545	1.2503	1.4301	1.5909
i=40	a)	0.6400	0.9053	1.0849	1.2436	1.3955	1.5416	1.6777
	b)	0.6400	0.8866	1.0654	1.2239	1.3744	1.5181	1.6530
i=50	a)	1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000
	b)	1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000

The difference solutions given in Table 1, obtained according to schemes a) and b), are graphically compared in Figure 1.

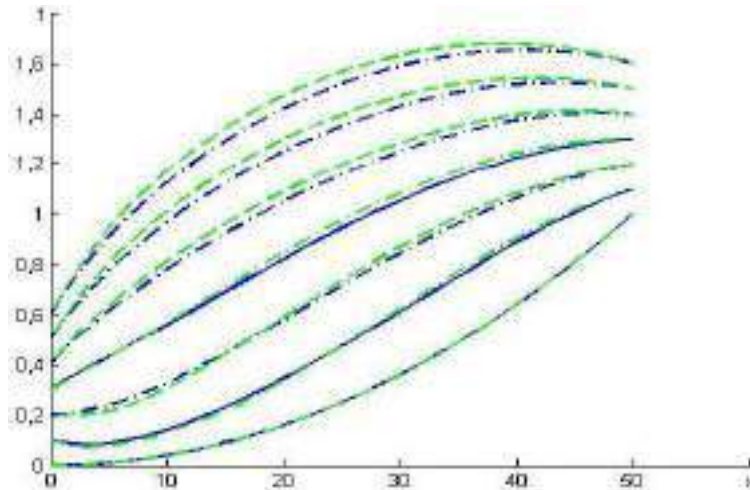


Fig. 1. scheme a) broken line, scheme b) broken line with a point.



From the results of the computational experiment shown in Table 1 and Fig. 1, it can be seen that the difference solutions are somewhat different. To improve the accuracy according to scheme a), we reduce the grid step in time, and the grid step according to scheme b) will remain unchanged, i.e. in scheme a) ($\tau = 0.002, N1 = 300$) and in scheme b) ($\tau = 0.02, N1 = 30$). The results of calculations are shown in Table 2.

Table 2 Results obtained according to schemes a) and b).

t_j x_i		0	0.1	0.2	0.3	0.4	0.5	0.6
		i=0	a) 0	0.1000	0.2000	0.3000	0.4000	0.5000
	b) 0	0.1000	0.2000	0.3000	0.4000	0.5000	0.6000	
i=10	a) 0.0400	0.1326	0.3238	0.5943	0.8383	1.0309	1.1844	
	b) 0.0400	0.1382	0.3303	0.5828	0.8136	1.0017	1.1552	
i=20	a) 0.1600	0.3443	0.6076	0.8697	1.1121	1.3183	1.4872	
	b) 0.1600	0.3466	0.5973	0.8510	1.0858	1.2879	1.4565	
i=30	a) 0.3600	0.6369	0.8837	1.0994	1.3018	1.4866	1.6465	
	b) 0.3600	0.6268	0.8676	1.0813	1.2807	1.4625	1.6218	
i=40	a) 0.6400	0.9133	1.0918	1.2506	1.4036	1.5504	1.6855	
	b) 0.6400	0.9020	1.0808	1.2396	1.3916	1.5368	1.6714	
i=50	a) 1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000	
	b) 1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000	

The results obtained in Table 2 by the difference schemes a) and b) are graphically shown in Figures 2.

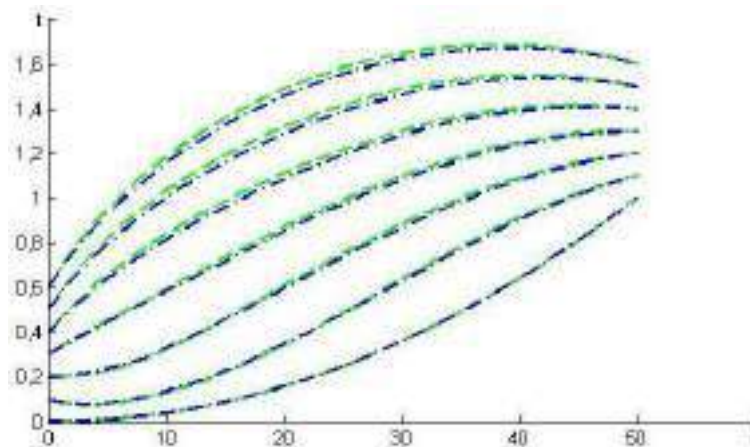


Fig. 2. scheme a) broken line, scheme b) broken line with a point.

The results of the computational experiment show that in order to obtain the accuracy achieved by scheme b) in scheme a) the grid step in time should be reduced by a factor of 10. In this case, the number of arithmetic operations according to scheme a) is equal to $Q_1 = 120,000$, and according to scheme b) is equal to $Q_2 = 36,000$.

In case $\sigma = 2$, i.e. when the thermal conductivity coefficient is a quadratic function of temperature, the steps according to difference schemes a) and b) are chosen the same, i.e. $h = 0.02$ and $\tau = 0.02$. A computational experiment was carried out according to schemes a) and b) and the results obtained are shown in Table 3.

Table 3 Results obtained according to schemes a) and b).

t_j x_i		0	0.1	0.2	0.3	0.4	0.5	0.6
		i=0	a) 0	0.1000	0.2000	0.3000	0.4000	0.5000



	b)	0	0.1000	0.2000	0.3000	0.4000	0.5000	0.6000
i=10	a)	0.0400	0.1050	0.1942	0.4368	0.8377	1.1150	1.2690
	b)	0.0400	0.1061	0.2164	0.5248	0.8691	1.1001	1.2400
i=20	a)	0.1600	0.2811	0.5564	0.8783	1.1390	1.3553	1.5080
	b)	0.1600	0.3016	0.5949	0.8884	1.1387	1.3424	1.4861
i=30	a)	0.3600	0.6267	0.9111	1.1289	1.3153	1.4845	1.6228
	b)	0.3600	0.6430	0.9108	1.1229	1.3081	1.4741	1.6074
i=40	a)	0.6400	0.9342	1.1132	1.2623	1.4002	1.5323	1.6519
	b)	0.6400	0.9302	1.1075	1.2565	1.3947	1.5261	1.6436
i=50	a)	1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000
	b)	1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000

The results obtained according to schemes a) and b) in Table 3 are graphically shown in Figures 3.

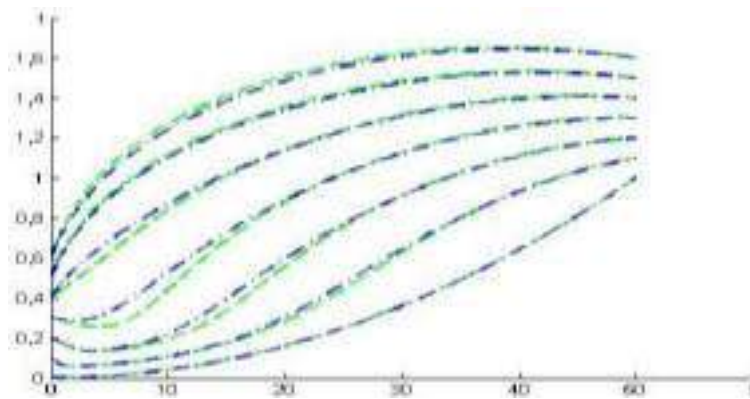


Fig. 3. scheme a) broken line, scheme b) broken line with a point.

From the calculation results given in Table 3 and Figures 3, it can be seen that the difference solutions obtained by schemes a) and b) differ significantly. In order to increase the accuracy according to scheme a), we decrease the grid step in time, and the grid step according to scheme b) will remain unchanged, i.e. in scheme a) ($\tau = 0.0002, N1 = 3000$) and in scheme b) ($\tau = 0.02, N2 = 30$). The obtained numerical results are shown in table 4.

Table 4 Results obtained according to schemes a) and b).

t_j x_i		0	0.1	0.2	0.3	0.4	0.5	0.6
		i=0	a)	0	0.1000	0.2000	0.3000	0.4000
	b)	0	0.1000	0.2000	0.3000	0.4000	0.5000	0.6000
i=10	a)	0.0400	0.1067	0.2010	0.5158	0.8939	1.1388	1.2768
	b)	0.0400	0.1061	0.2164	0.5248	0.8691	1.1001	1.2400
i=20	a)	0.1600	0.2882	0.5998	0.9090	1.1630	1.3731	1.5162
	b)	0.1600	0.3016	0.5949	0.8884	1.1387	1.3424	1.4861
i=30	a)	0.3600	0.6514	0.9289	1.1416	1.3265	1.4954	1.6291
	b)	0.3600	0.6430	0.9108	1.1229	1.3081	1.4741	1.6074
i=40	a)	0.6400	0.9433	1.1188	1.2670	1.4047	1.5374	1.6554
	b)	0.6400	0.9302	1.1075	1.2565	1.3947	1.5261	1.6436
i=50	a)	1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000
	b)	1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000

Difference solutions obtained by schemes a) and b) and presented in Table 4 are graphically shown in Fig. 4.

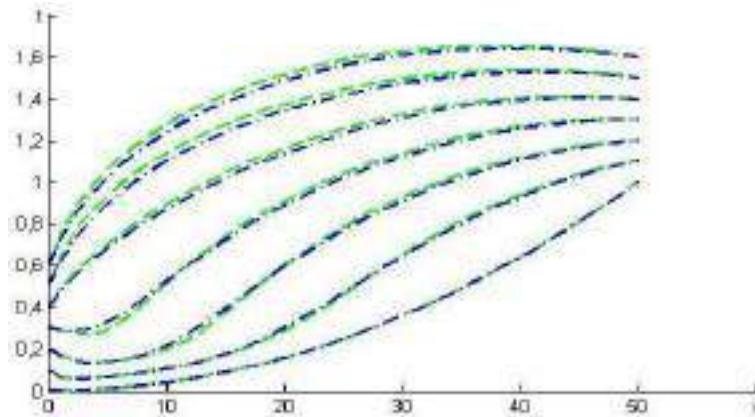


Fig. 4. scheme a) broken line, scheme b) broken line with a point.

The results of the computational experiment carried out in case $\sigma = 2$ show that in order to obtain the accuracy achieved by scheme b) in scheme a) the grid step in time should be reduced by 100 times. In this case, the number of arithmetic operations according to scheme a) is equal to $Q_1 = 1200,000$, and according to scheme b) it is equal to $Q_2 = 36,000$.

In case $\sigma = 3$, i.e. when the thermal conductivity coefficient is a cubic function of temperature, at first the steps of the difference grid will remain unchanged: $h = 0.02$ and $\tau = 0.02$. The obtained numerical results according to schemes a) and b) are shown in Table 5.

Table 5 Results obtained according to schemes a) and b).

t_j x_i		0	0.1	0.2	0.3	0.4	0.5	0.6
		i=0	a)	0	0.1000	0.2000	0.3000	0.4000
	b)	0	0.1000	0.2000	0.3000	0.4000	0.5000	0.6000
i=10	a)	0.0400	0.1030	0.1808	0.2859	0.8233	1.1849	1.3185
	b)	0.0400	0.1032	0.1818	0.4237	0.8902	1.1611	1.2821
i=20	a)	0.1600	0.2558	0.4564	0.9017	1.1768	1.3825	1.5099
	b)	0.1600	0.2617	0.5651	0.9182	1.1704	1.3644	1.4846
i=30	a)	0.3600	0.6041	0.9388	1.1581	1.3307	1.4824	1.5993
	b)	0.3600	0.6439	0.9400	1.1491	1.3197	1.4692	1.5822
i=40	a)	0.6400	0.9535	1.1304	1.2712	1.3986	1.5195	1.6265
	b)	0.6400	0.9494	1.1234	1.2639	1.3915	1.5121	1.6174
i=50	a)	1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000
	b)	1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000

The results shown in Table 5 for schemes a) and b) are graphically shown in Figure 5.

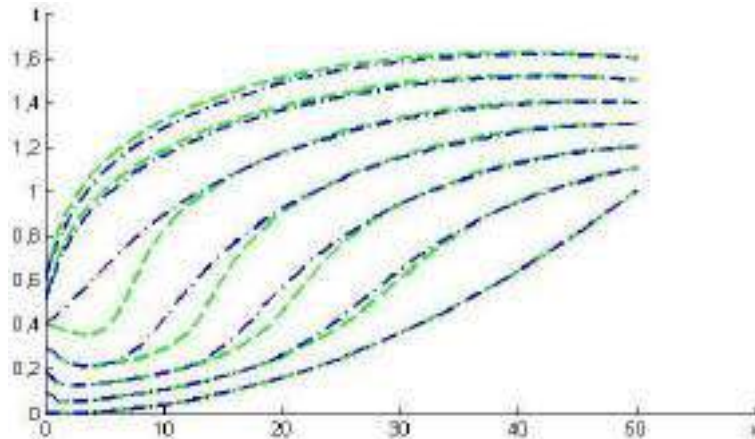


Fig. 5. scheme a) broken line, scheme b) broken line with a point.

From the calculation results given in Table 5 and Figures 5, it can be seen that the difference solutions obtained by schemes a) and b) rarely differ. In order to increase the accuracy according to scheme a), we decrease the time step, and leave the grid step according to scheme b) unchanged, i.e. according to scheme a) ($\tau = 0.00002, N1 = 30000$) and in scheme b) ($\tau = 0.02, N2 = 30$). The results obtained are shown in table 6.

Table 6 Results obtained according to schemes a) and b).

t_j x_i		0	0.1	0.2	0.3	0.4	0.5	0.6
		i=0	a) 0	0.1000	0.2000	0.3000	0.4000	0.5000
	b) 0	0.1000	0.2000	0.3000	0.4000	0.5000	0.6000	
i=10	a)	0.0400	0.1043	0.1842	0.3254	0.9017	1.1988	1.3182
	b)	0.0400	0.1032	0.1818	0.4237	0.8902	1.1611	1.2821
i=20	a)	0.1600	0.2585	0.5377	0.9356	1.1909	1.3899	1.5100
	b)	0.1600	0.2617	0.5651	0.9182	1.1704	1.3644	1.4846
i=30	a)	0.3600	0.6406	0.9562	1.1656	1.3348	1.4856	1.5992
	b)	0.3600	0.6439	0.9400	1.1491	1.3197	1.4692	1.5822
i=40	a)	0.6400	0.9619	1.1336	1.2728	1.3996	1.5205	1.6263
	b)	0.6400	0.9494	1.1234	1.2639	1.3915	1.5121	1.6174
i=50	a)	1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000
	b)	1.0000	1.1000	1.2000	1.3000	1.4000	1.5000	1.6000

The calculation results are shown in Table 6 according to schemes a) and b) are graphically shown in Figure 6.

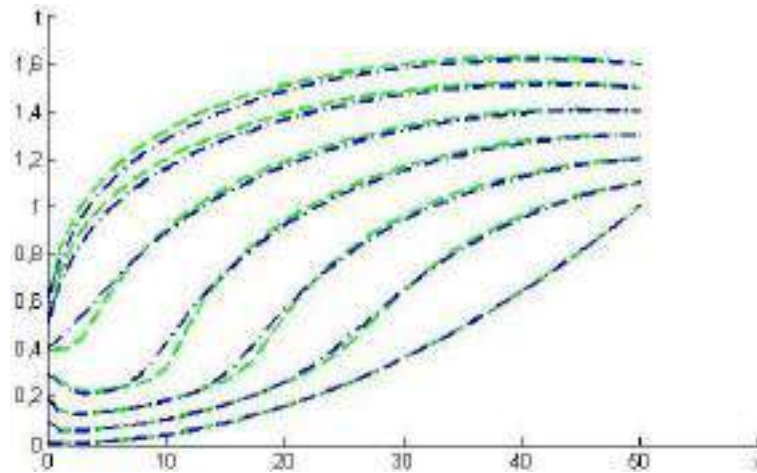


Fig. 6. scheme a) broken line, scheme b) broken line with a point.

The results of the computational experiment carried out in case $\sigma = 3$ show that in order to obtain the accuracy achieved according to scheme b) in scheme a) the grid step in time should be reduced by 1000 times. In this case, the number of arithmetic operations according to scheme a) is equal to $Q_1 = 12,000,000$, and according to scheme b) it is equal to $Q_2 = 36,000$.

Now, the number of arithmetic operations Q spent for different values of the forms of parameter σ will be entered into table 7.

Table 7 Results obtained according to schemes a) and b).

form parameter σ	1	2	3
scheme a)	$12 * 10^4$	$12 * 10^5$	$12 * 10^6$
scheme b)	$36 * 10^3$	$36 * 10^3$	$36 * 10^3$

The results given in Table 7 are graphically depicted in Figure 7. Thus, the nonlinearity of the thermal conductivity coefficient leads to of which the final rate of heat propagation.

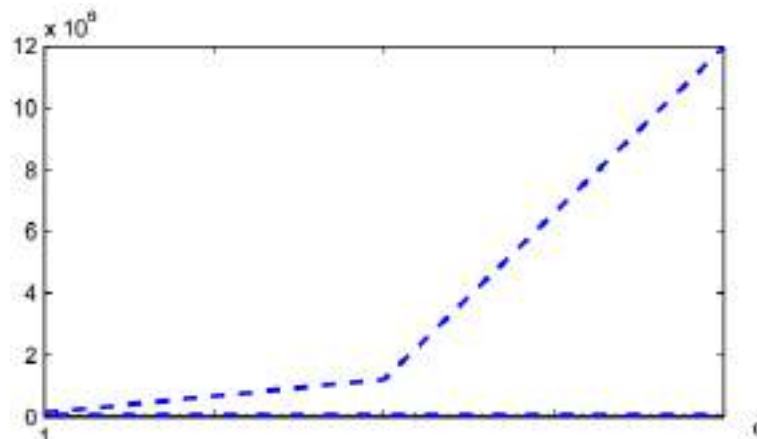


Fig. 7. Scheme A) Broken Line, Scheme B) Broken Line With A Point.

CONCLUSIONS

1. Difference solutions for the quasilinear heat equation are determined, when the heat conductivity coefficient is a nonlinear function of temperature using an implicit and implicit iterative scheme.
2. The implicit and implicit iterative schemes are compared in terms of the number of arithmetic operations, formulas for calculating the numbers of arithmetic operations are derived.
3. The high efficiency of the implicit iterative scheme is shown in solving the formulated differential problem.



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APPROXIMATION OF THE EQUATION OF HEAT CONDUCTIVITY BY SPECTRAL-GRID METHODS

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ABSTRACT

For mathematical modeling of linear wave systems, numerical methods are increasingly being used. At the same time, their application to the solution of evolutionary problems with large gradients described by non-stationary partial differential equations run into serious difficulties. The spectral - grid method is applied for numerical modeling of initial - boundary value problems for heat conduction equations. The performed numerical calculations show a high computational efficiency of the spectral - grid method.

KEYWORDS: *numerical modeling, heat equation, spectral - grid method, evolutionary problems, Chebyshev polynomials of the first kind, algebraic system, interval of integration, grid approximation, approximate solution, efficiency.*

INTRODUCTION

The heat equation is a second-order partial differential equation that describes the temperature distribution in a given area of space and its change in time.

One of the most characteristic properties of wave movements is that they continue to exist even after the elimination of the causes that cause them [1-8]. Waves usually persist for a long time and can transmit disturbances over very long distances. In fact, waves acquire their most characteristic shape precisely after propagation to a "large" distance from the region in which they "originated". One of the important and difficult mathematical problems is related to the description of the behavior of low-amplitude waves that undergo weak dissipation over long time intervals.

Self-oscillating systems occupy a special place among linear systems [9-15]. Self-oscillating systems are clocks, lamp generators of electromagnetic oscillations, steam engines and internal combustion engines, in a word, all real systems that are capable of performing continuous oscillations in the absence of periodic external influences.

MAIN PART

One of the important and difficult mathematical problems is related to the description of the behavior of low-amplitude waves that experience weak dissipation over long time intervals [1]. These restrictions are not as special as they might seem at first glance. Since, as follows from observations, waves are indeed able to exist for a long time outside the sources, the limitations associated with the assumption of low dissipation and large time intervals are quite natural. In gas dynamics, there is weak dissipation, characterized by the dimensionless parameter Re^{-1} , where Re is the Reynolds number. In this case, the magnitude of the amplitude of wave ε is



small, but finite. In cases of greatest interest, the corresponding linear equation should be considered at time intervals of the order of ε^{-1} .

$$\frac{\partial u}{\partial t} = \nu \frac{\partial^2 u}{\partial \eta^2}, a < \eta < b, \quad (1)$$

$$u(a, t) = 0, \quad (2)$$

$$u(b, t) = 0, \quad (2)$$

$$u(\eta, 0) = u_0(\eta). \quad (3)$$

We divide the interval of integration $[a, b]$ into M different elements:

$$[\eta_0, \eta_1], [\eta_1, \eta_2], [\eta_2, \eta_3], \dots, [\eta_{i-1}, \eta_i], \dots, [\eta_{M-1}, \eta_M],$$

where $\eta_0 = a$, $\eta_M = b$. To represent the approximate solution in the form of series in Chebyshev polynomials, each element $[\eta_{i-1}, \eta_i]$ of integration interval $[a, b]$ is mapped to interval $[-1, 1]$ using the following replacement of the independent variable

$$\eta_i = \frac{m_i}{2} + \frac{k_i}{2} y, \quad (4)$$

here $m_i = \eta_i + \eta_{i-1}$, $k_i = \eta_i - \eta_{i-1}$ is the length of the i -th mesh element and $y \in [-1, 1]$. After this transformation, problem (1) - (3) takes the form:

$$\frac{\partial u_i}{\partial t} = \nu \left(\frac{2}{k_i} \right)^2 \frac{\partial^2 u_i}{\partial y^2}, \quad i = 1, 2, \dots, M \quad (5)$$

$$u_i(1) = u_{i+1}(-1), \quad i = 1, 2, \dots, M - 1, \quad (6)$$

$$\frac{1}{k_i} \frac{\partial u_i}{\partial y}(1) = \frac{1}{k_{i+1}} \frac{\partial u_{i+1}}{\partial y}(-1), \quad i = 1, 2, \dots, M - 1, \quad (7)$$

$$u_1(-1) = u_M(1) = 0, \quad (8)$$

$$u_i(y, 0) = u_0 \left(\frac{m_i}{2} + \frac{k_i}{2} y, 0 \right), \quad i = 1, 2, \dots, M, \quad (9)$$

where the equations (6) - (7) of the approximate solutions of continuity requirements and its first derivative in the internal nodes of the grid, equation (8) - form of the initial data (initial data for the future position of fundamental importance and have therefore not considered).

An approximate solution of equations (5) - (8) will be sought in the form of series in Chebyshev polynomials of the first kind $T_n(y)$ [8-15]:

For this, we introduce matrix notation as follows. Replace in (5) - (7) taking into account the derivatives by the expressions:

$$\frac{\partial v}{\partial y} = \hat{B}v, \quad (10)$$

$$\frac{\partial^2 v}{\partial y^2} = \hat{A}v, \quad (11)$$

where v is the vector of length $(N+1)M$ with components:

$$v \equiv \{u_1(y_0) \dots u_1(y_N), u_2(y_0) \dots u_2(y_N), u_3(y_0) \dots, u_M(y_0) \dots u_M(y_N)\}, \quad (12)$$

in \hat{A} and \hat{B} - square matrices of dimension $((N+1)M) \times ((N+1)M)$ with block-diagonal structure.

where \hat{A} and \hat{B} denote the following matrix products:

$$\hat{A} = TPT^*, \quad \hat{B} = TRT^*. \quad (13)$$



autonomous systems of equations: a differential system of a smaller order $(N-1)M$ only at the interior points of the interval and an algebraic system of the standard form $Ax = b$ for the remaining components of the solution (at the boundary points of the elements).

Let us denote by X, Y, V_j and W_j combinations of variables in conditions (15) and we will consider them as new dependent variables:

$$\begin{aligned} V_j &\equiv u_j(y_N) - u_{j+1}(y_1) = 0, & j = 1, \dots, M-1 \\ W_j &\equiv \frac{1}{K_j} \frac{\partial u_j}{\partial y}(y_N) - \frac{1}{K_{j+1}} \frac{\partial u_{j+1}}{\partial y}(y_1) = 0, \\ j &= 1, \dots, M-1 \\ X &\equiv u_1(y_0) = 0, \\ Y &\equiv u_N(y_N) = 0, \end{aligned} \tag{18}$$

then vector

$$w = \{X, u_1(y_1) \dots u_1(y_{N-1}), V_1, W_1, u_2(y_1) \dots u_2(y_{N-1}), V_2, W_2, \dots, V_{M-1}, W_{M-1}, u_M(y_1) \dots u_M(y_{N-1}), Y\} \tag{19}$$

coincides with S from (18) and is related to v from (12) by the relation:

$$w = Gv. \tag{20}$$

Here G is a nondegenerate matrix of dimension $((N+1)M) \times ((N+1)M)$.

In which rows with numbers $j(N+1)$ ($j=1, \dots, M-1$) are rows of matrix D with numbers $2j$ ($j=1, \dots, M-1$), and rows $j(N+1)+1$ ($j=1, \dots, M-1$) are its rows with numbers $2j+1$.

We also introduce the notation:

$$\hat{H} = AG^{-1}, \tag{21}$$

in which (14) takes the form:

$$\frac{dw}{dt} = \hat{H}w, \tag{22}$$

Thus, it can be seen from (22) that the system of ordinary differential equations (14) has been reduced to a system of lower dimension, and with a nondegenerate matrix H (all zero rows and all columns are excluded from matrix \hat{H} , whose elements are multiplied by the corresponding zero elements of vector w):

$$\frac{dr}{dt} = Hr, \tag{23}$$

Here the dimension is $H : (M(N-1)) \times (M(N-1))$, and

$$r = \{u_1(y_1) \dots u_1(y_{N-1}), u_2(y_1) \dots u_2(y_{N-1}), \dots, u_M(y_1) \dots u_M(y_{N-1})\},$$

are vectors of length $(M(N-1))$, moreover, the r vector differs from the vector v only by the absence of components numbered $(j-1)N+1$ and jN , where $j=1, \dots, M$. The missing vector components are found by solving the linear algebraic system (20).

The system of equations (23) is evolutionary. For its numerical solution in this work, as already mentioned, the method [16,17] was used. Namely, for the transition to the next time layer, an explicit scheme of the form was used:

$$\begin{aligned} r(t+\tau) &= r(t) + RQr(t), \\ R\varphi(t) &= \frac{\tau}{12} [23\varphi(t) - 16\varphi(t-\tau) + 5\varphi(t-2\tau)], \\ Q &= \frac{12}{\tau} \frac{(e^{H\tau} - E)}{(23E - 16e^{-H\tau} + 5e^{-2H\tau})}, \end{aligned} \tag{24}$$



where matrix Q is obtained using special transformations of system (23) - see [16], R is the operator of the third-order Adams-Bashfort scheme, E is the unit matrix, τ is the integration step. The use of scheme (24) in comparison with the usual Adams-Bashfort scheme makes it possible to significantly weaken the restrictions on τ associated with the requirements for its stability.

Thus, the sequence of calculations is as follows:

- 1) The region of integration is divided into a certain number of elements M ;
- 2) A one-step algorithm (for example, the Runge-Kutta method) finds a solution on the first two time layers: $t = \tau, t = 2\tau$;
- 3) A number of non-degenerate transformations of matrix H are carried out in order to weaken the stability condition;
- 4) According to the formula (24), the transition to a new time layer $t = \tau$ is carried out;
- 5) The components of the vector v at the boundary points of the elements are found from the solution of the algebraic system (20).

RESULTS AND DISCUSSION

The constructed algorithm was applied to calculations of one-dimensional initial-boundary value problems for heat conduction equations.

In the case of the heat equation:

$$\frac{\partial u}{\partial t} = \nu \frac{\partial^2 u}{\partial \eta^2}, \quad (25)$$

a comparison was made with the analytical solution for error rates:
absolute:

$$\Delta = \max_j |u_r(\eta_j, t_\phi) - u_\tau(\eta_j, t_\phi)|, \quad (26)$$

and relative:

$$\varepsilon = \frac{\Delta}{\max_j |u_r(\eta_j, t_\phi)|}, \quad (27)$$

where $u_r(\eta, t_\phi)$ and $u_\tau(\eta, t_\phi)$ are, respectively, a numerical and analytical solution at a fixed moment t_ϕ .

The initial conditions at time $t = 0$ were chosen in the form of a Gaussian distribution normalized to 1. The exact analytical solution in this case has the form:

$$u_r(\eta, t) = \sqrt{\frac{t_0}{t+t_0}} \cdot \exp\left[-\frac{\eta^2}{4R(t+t_0)}\right], \quad (28)$$

$$R = \nu, \eta \in]-\infty, \infty[.$$

Constant t_0 determines the half-width of the initial distribution:

the less t_0 , the narrower it is. Everywhere in the calculations: $t_0 = 0.15$, $\nu = 10^{-2}/\pi$, $n = 32$, $\tau = 0.01$. Integration interval is selected $[-1, 1]$. For a given half-width of the initial distribution, function (28) at the boundary points is equal to zero with an accuracy of 10^{-12} . Therefore, equation (28) was solved under the following boundary conditions:

$$u(\pm 1, t) = 0, \quad (29)$$

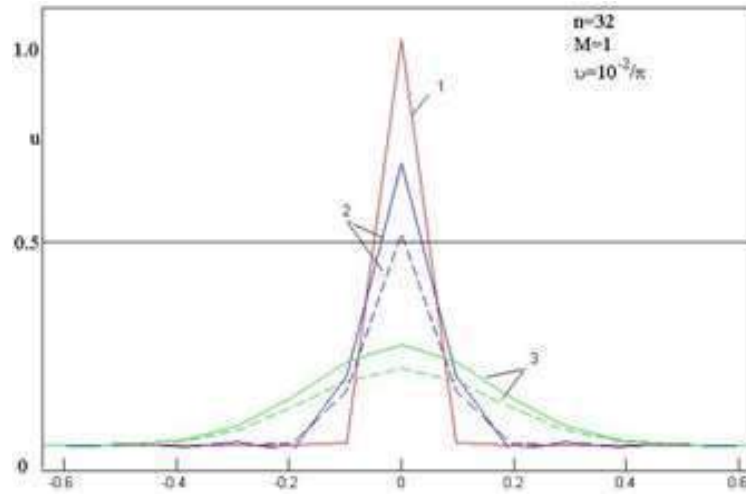


Fig.1

Figure 1 shows the evolution of the numerical solution of problem (25), (29), found using the constructed method in the case when the region of integration was not divided into elements ($M = 1$). Solid curves 1, 2, 3 correspond to the numerical solution at times $t = 0, 40\tau, 400\tau$. Dotted curves 2, 3 correspond to the exact solution (28) at the same time instants. It can be seen that when using Chebyshev polynomials, the nodes on the interval are not rationally located - they thicken towards the edges of the interval, while only 14% of the nodes are in the region of rapid solution change. As a result, the solution accuracy turns out to be low:

ε and Δ are of order 10^{-1} (see Table 1).

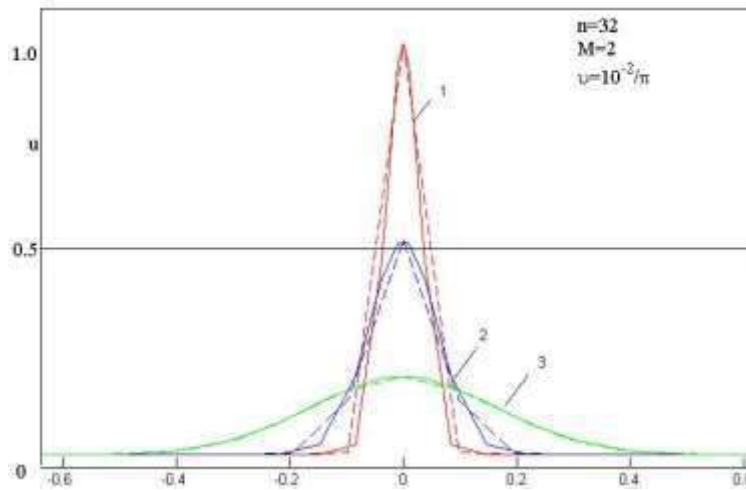


Fig.2

Figure: 2 shows the evolution of the numerical solution of the same problem for the case when the region of integration was divided into 2 elements: $[-1,0], [0,1]$. This division is more successful - about 30% of the grid nodes fall into the inhomogeneity region. The accuracy in this case is 2 orders of magnitude higher (see Table 2); therefore, the solid curves (numerical solution) and dashed curves (exact solution) in Fig. practically indistinguishable.

Table 1.
Calculation results

t	0.01	0.1	0.4	2.0	4.2
Δ	$2 \cdot 10^{-2}$	10^{-1}	$2 \cdot 10^{-1}$	$9 \cdot 10^{-2}$	$6 \cdot 10^{-2}$
ε	$2 \cdot 10^{-2}$	10^{-1}	$3 \cdot 10^{-1}$	$3 \cdot 10^{-1}$	$2 \cdot 10^{-1}$

**Table 2.**
Calculation results

t	0.01	0.1	0.4	2.0	4.2
Δ	$2 \cdot 10^{-2}$	$5 \cdot 10^{-3}$	$2 \cdot 10^{-3}$	$7 \cdot 10^{-4}$	$5 \cdot 10^{-4}$
ε	$2 \cdot 10^{-2}$	$6 \cdot 10^{-3}$	$4 \cdot 10^{-3}$	$3 \cdot 10^{-3}$	$2 \cdot 10^{-3}$

CONCLUSIONS

1. A spectral-grid explicit method for solving evolutionary problems with large gradients is constructed. Depending on the location of the regions of inhomogeneity, the integration interval is divided into a finite number of elements. On each of the elements, spectral approximation by finite series in basis functions is used.
2. Concrete calculations for the heat conduction equation have been performed, and a comparison has been made with the single-element pseudospectral method.
3. It is shown that the use of the spectral-grid approximation makes it possible to significantly increase the accuracy of calculations without increasing the total number of basis functions.

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CHANGES IN THE CLASSIFICATION OF CITIES IN KASHKADARYA REGION (1970-2016)

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ABSTRACT

In this article, it is very important to know the size of cities when studying them. Also, in the future, the classification of cities will play a special role in the construction of industrial enterprises, the location of social infrastructure. In this sense, it is important to classify cities

KEY WORDS: *city, population, classification, small town, "semi-medium" city, medium town, big city.*

DISCUSSION

Cities are classified according to population. This is called a classification in science, and the Latin word "classis" means "class" and "fasio" means "I will be" [1]. In the last years of the Soviet era, cities were divided into five categories according to their population, in which the population was defined as follows:

- 1) the largest cities - with a population of more than 500 thousand;
- 2) large cities - with a population of 250-500 thousand people;
- 3) large cities - up to 100-250 thousand people;
- 4) medium-sized cities - from 50 thousand to 100 thousand people;
- 5) small towns - cities with a population of up to 50 thousand people [2].

In 1989, there were 124 cities in Uzbekistan, of which 101 were small, 7 medium and 12 large (Angren, Bukhara, Jizzakh, Margilan, Navoi, Nukus, Almalyk, Karshi, Kokand, Urgench, Fergana, Chirchik). 3 of them are large cities (Samarkand, Namangan, Andijan), 1 is the largest (Tashkent). 81.4% of the cities in the country belong to the category of small and 5.6% to medium-sized cities, 9.6% to large cities. In Kashkadarya region in 1970, two cities - Karshi and Shakhrisabz - had the status of cities, and Shakhrisabz was included in the category of small town (population up to 50 thousand), Karshi - medium city (population 50-100 thousand). During the Soviet era, when the All-Union census was conducted (1979 and 1989), there was an increase in

the population of the cities of Kashkadarya region, and there were changes in the classification. There were 9 small towns with a population of up to 50,000 in 1979, and only Karshi was included in the category of large cities (with a population of 100,000-250,000). There were also no cities that fell into the category of medium, large, and largest cities at that time. The total number of cities in the region was 10. In Kashkadarya region, the number of cities and their population has grown. In 1989, the classification of the cities of the region was as follows: small towns were included in the category of 10, Shahrisabz was included in the category of medium and Karshi was included in the category of large cities. At that time, the number of cities in the region was 12. In 1990, the classification of provincial cities remained the same as in 1989 and remained unchanged. Cities are divided into cities of republican, regional, district subordination. The cities of the republic include cities with a population of more than 500,000 and large economic and cultural centers. The cities under the jurisdiction of the region include cities or townships of significant industrial importance, economic and cultural center, with a population of not less than 30 thousand people. In some cases, some cities of special industrial and cultural-political significance and with favorable prospects for socio-economic development and population growth are included in the category of cities subordinate to the region, even if the population is less than 30,000. The cities of the district include industrial enterprises, public utilities, the state housing fund, developed socio-cultural organizations, trade and catering, consumer services,



and cities and towns with a population of at least 7,000 [5]. More than two-thirds of the population in such cities was to be composed of workers and servants. During the Soviet period, taking into account the demographic potential and economic situation of some cities in the region, it was transferred from the district to the regional subordination. The role of Kitab, Mubarak and Kasan in the economic development of the region has increased. Therefore, on November 27, 1979, Kitab [6], on December 14, 1979, Mubarak [7] and in 1980, Kasan [8] were included in the category of cities subordinate to the province. By 1990, 5 cities (Karshi, Shakhrisabz, Kitab, Kasan, Mubarek) were under the jurisdiction of the region and 7 cities (Beshkent, Talimarjan, Chirakchi, Yangi Nishan, Yakkabog, Kamashi, Guzar) cities subordinate to the

district. During the Soviet era, he held a separate khokimiyat position in the cities of Uzbekistan, including the cities of Kashkadarya region, and had an administrative system. In general, when analyzed in 1970-1990, there were significant changes in the classification of cities in the region. Small towns with a population of up to 50,000 were one in 1970 and 10 in 1990. The number of medium (population 50-100 thousand) cities in the region remained unchanged and amounted to one. In 1970, large cities (population 100-250 thousand) did not exist at all. By 1990, the only regional center was Karshi. The number of cities under the province increased from 2 in 1970 to 5 in 1990. The cities subordinate to the district did not exist at all in 1970, in 1990 they numbered 7.



During the years of independence, a number of measures for the development of cities have been developed and put into practice. For example, on May 7, 2004, the 59-article Urban Development Code of the Republic of Uzbekistan was promulgated. It regulates the legislation on urban planning, and according to Article 9, according to the population, urban settlements are divided into:

the largest settlement - with a population of more than one million people;

large settlement - the population is from two hundred fifty thousand to one million people; large settlement - the population is from one hundred thousand to two hundred fifty thousand people; average settlement - the population is from fifty thousand to one hundred thousand people; a small settlement with a population of up to fifty thousand. As development progresses, the division of cities into categories according to population changes. Currently, cities are divided into 8 categories - small, small, "semi-medium", medium, large, large, largest, millionaire cities. During the years of independence in the Republic of Uzbekistan (2016) there were 119 cities, including 3 small towns, 28 small towns, 50

"semi-medium" cities, 20 medium cities, 10 large cities, 6 large cities, the largest. There is one city (Namangan) and one millionaire city (Tashkent). In the first years of independence, the classification of cities in Kashkadarya region was unique. In 1995, there were 2 small towns with a population of up to 10,000 in the region, 3 small towns (with a population of 10,000-20,000), and 5 "semi-medium-sized" cities (with a population of 20,000-50,000). One secondary in the province (Shahrisabz) and one large (Karshi) city. At this time, the majority of cities in the region are small and "semi-medium" cities. By 2015, there were changes in the classification of cities in the region. There were no small towns with a population of up to 10,000 at all. There were 3 small towns and 6 "semi-medium" cities. There are only one medium (Kasan), large (Shahrisabz) and large (Karshi) cities in the region, and the main part of the region's cities are small, small and "semi-medium" cities. In general, when analyzing 1995-2015, there have been some changes in the classification of cities in the region over the past 20 years. While small towns with a population of up to 10,000 had 2 in 1995, there were no cities in



this category in 2015. "Semi-medium" (population 20-50 thousand) cities increased from 5 to 6. The number of small (population 10-20 thousand), medium (population 20-50 thousand) and large (population 50-100 thousand) cities in the region remained unchanged. In 1995, there was no large city in the region (population 250-500 thousand), but in 2015 it was Karshi. In 2016, the classification of cities in the region remained the same as in 2015 and remained unchanged. Classification of cities of Kashkadarya region (2015) [11].

During the years of independence, there have been no major changes in the structure of the cities

subordinate to the region. The number of such cities decreased from 2 in 1995 to 1 in 2015 (since 2017, the Shahrisabz city administration has been reorganized, and now there are 2 cities under the province). The number of cities under the district increased from 10 in 1995 to 11 in 2015. In Kashkadarya region, the post of mayor was held in the regional center - Karshi, in the administrative system. Also in the cities of Shakhrisabz and Talimarjan there was a post of mayor (first deputy mayor).



So, the classification of cities in the region is unique. Between 1970 and 2016, there were huge changes in the category of cities. Over the past 45 years, the number of cities with a population of up to 50,000 (small - 10-20 thousand and "semi-medium" - 20-50 thousand) has increased from 1 to 10. This is explained by the fact that medium-sized cities with a population of 50-100 thousand remained unchanged, while large (population 100-250 thousand) and large (population 250-500 thousand) cities increased by 1. The main part of the cities of Kashkadarya region is occupied by small and "semi-medium" cities. Small, semi-medium and medium-sized cities in the region make up 83.3% of the total number of cities.

In the years under review, the number of cities subordinate to the region increased from 2 to 5 during the Soviet period, and decreased to 1 during the years of independence (01.01.2016).

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LEXICAL COMPOSITION OF THE WORK "KYSASY RABGUZI" AND ITS STATISTICAL ANALYSIS

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ЛЕКСИЧЕСКИЙ СОСТАВ ПРОИЗВЕДЕНИЯ «КЫСАСЫ РАБГУЗИ» И ЕГО СТАТИСТИЧЕСКИЙ АНАЛИЗ

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Аннотация: В тюркских языках, в т.ч. и в узбекском языке в качестве основы разделения слов на части речи берутся морфологические признаки, в особенности, лексическое значение и синтаксические свойства. В данной статье освещено лексический состав произведения «Кысасы рабгузи» и его статистический анализ.

Ключевые слова: тюркских язык, «Кысасы рабгузи», лексика.

Статистический взгляд на языковые единицы обосновывается следующим: всеобщий характер языкового изложения; свойство повторения языковых единиц в ходе изложения, повествования и, наконец, произвольный характер использования (повтора) или опускания языковых единиц в данном процессе. В языке памятника использовано всего 5511 лексем, 2950 из них тюркские, 2151 - арабские, 329 - персидские, 55 - древне-еврейские, заимствованные посредством арабского языка, 14 - греческие, 3 - китайские, 4 - из санскрита, 5 - согдийские.

Действительно, в «Кысасы Рабгузи» Насируддина Бурхануддина Рабгузи, написанном замечательными примерами общенародного языка, приведены лексемы, относящиеся к независимым (имена существительные,

прилагательные, числительные, местоимение, глагол, наречие), вспомогательным (союз, послеслог, частица), модальным частям речи междо-метия. Ниже мы остановимся на них.

Независимые слова имеют лексический и грамматический смыслы, которые изменяются в зависимости от их места и роли в тексте. Слова, относящиеся к именам существительным в современном узбекском языке, имеют долгую историю. Они развивались в ногу со временем, в соответствии с изменениями в обществе и согласно внутренним возможностям языка. Это можно рассмотреть посредством наблюдения за языковыми особенностями древних памятников. В лексическом составе повести использовано всего 3067 лексем, относящихся к именам существительным, 2517 из них - нарицательные, 550 - собственные. Из 2517 нарицательных имен



существительных 2252 - непроизводные, 265 – производные, из 550 ономастических терминов 402 - антропонимы, 83 – топонимы, 33 – астропонимы, 19 – зоонимы, 13 – имена идолов. Также в памятнике использовано 29 сочетаний с изафетом. По семантическому значению имена существительные, использованные в произведении, классифицируются следующим образом:

Имена нарицательные: *barmaq* (121v1) – «палец», *bitig* (63v1) – «надпись» и др.

Ономастика. Имена собственные в повести делятся на следующие группы: 1) антропонимы: *Ātika* (184v1) – «тётя пророка»; 2) топонимы: *Bağdād* (176r2), *Xitāy* (68v2); 3) астропонимы: *Körüd* (66v7) – «Марс»; 4) зоонимы: *Burāq* (5v10) – «Летающий конь, возведший пророка Мухаммеда на небеса».

Имена прилагательные отражают свойства и признаки предмета с различных сторон. Эти признаки могут относиться непосредственно к человеку, а также одушевленному и неодушевленному предметам окружающей среды. По этим особенностям следует выделять среди имен прилагательных, встречающихся в памятнике, следующие группы: а) прилагательные, обозначающие цвет и оттенок предмета: *ügüç* (6r3) – «белый»; б) прилагательные, обозначающие свойства предмета: *ağın* (39r8) – «плохой»; в) прилагательные, обозначающие вид, объем и разрешение предмета: *ādīd* (5r21) – «великий», *yassı* (18v12) – «плоский»; г) прилагательные, обозначающие состояние предмета: *īsīğ* (68v8) – «теплый», *körklüg* (13r5) – «красивый»; д) прилагательные, обозначающие вкус и аромат предмета: *açığ* (6r4) – «горький», *süçüg* (88r21) – «сладкий»; е) прилагательные, обозначающие запах предмета: *anbar* (12v14) – «душистый».

Из 521 имени прилагательного, встречающегося в исследуемом памятнике, 258 – производные, 253 – непроизводные лексемы.

Система **имен числительных** в тюркском языке, как и в других языках, формировалась и видоизменялась постепенно. Это можно проследить на примере древних источников. В данных письменных памятниках использовано несколько видов имен числительных. В словарном составе повести встречается 169 числительных лексем, из них 143 - производные, 26- непроизводные. В произведении использованы следующие виды имен числительных, разделенных по семантическим свойствам и грамматическим признакам:

1. Количественные числительные: *on* (7v14) – «десять», *säkiz//säkkiz* (13v10) – «восемь».

2. Штучные числительные: *altısı* (118r5) – «шестеро», *ekki-ekki* (110v2).

3. Собираательные числительные: *altağu* (86v18) – «шестеро», *onağu* (63r4) – «вдесятером», *beşägü* (130v12) – «пятеро».

4. Нумеративы: *diram* (128r18) – «дирхем», *yığaç* (8r18) – «9 км», *böläk* (19r8) – «часть», *asr* (52v5) – «век».

5. Порядковые числительные: *üçünç//üçünçi* (13v1) – «третий», *tör- tünç//törtünçi* (13v3) – «четвертый», *on yetinç* (241v19) – «семнадцатый», *ikin- dük* (21r12) – «второй».

6. Неопределенные числительные: *bir-ikki* (196v2).

7. Дроби: *üç ülüşdin biri* (19v2) – «треть», *qırqđın biri* (166r5) – «одна сороковая часть», *üç yađım* (142r3) – «три с половиной».

Местоимение используется вместо имен, иногда вместо других частей речи и показывает наличие признака, свойственного предмету. Местоимение выражает предметность или его признак не везде, а только в контексте. С этой точки зрения местоимение, несмотря на то, что считается независимой частью речи, не имеет конкретного значения. Основное значение местоимения и то, вместо какой части речи оно используется, определяется контекстом.

В языке исследуемого источника есть 65 местоимений, они делятся на следующие группы по обозначаемому значению:

а) личные местоимения: *men* – «я» (5r4), *ul* – «он, она, оно» (6r1); б) возвратные местоимения: *kendu* (31r20) – «свой», *öz* (6v11) – «свой»; в) указательные местоимения: *bu* – «этот, эта, это» (4r17), *mi* – «этот, эта, это» (6v17); г) вопросительные местоимения: *kim* – «кто» (4r4), *netäk* – «почему», (6v8); д) определительные местоимения: *qamığ* – «все, всё, весь» (6r2), *tekmä* (4v2) – «каждый»; е) неопределенные местоимения: *kimersä* – «кто-то» (7v4), *birägü* – «кто-то» (22v21); ё) отрицательные местоимения: *heç* – «ни, ничего» (11r21), *heç kimersä* – «ни кто» (199r10).

Глагол занимает центральное положение в синтаксических конструкциях, определяет структуру предложения, имеет возможность обозначать, из слов с каким значением состоит предложение. С учётом того, что среди частей речи главенствующее место занимают глаголы и имена существительные, понятно, что исследование глагола является очень широкой сферой деятельности. В «Кысасы Рабгузи» использовано 991 лексем глаголов, 976 из них - исконно тюркские, 4 – арабские, 11 – персидские лексемы. Их можно разделить на следующие тематические группы согласно их семантическим свойствам и грамматическим признакам:



I. Речевые глаголы: arsiq- (243r21) – «обманываться», tap- (26r10) – «отказываться».

II. Глаголы состояния: tünä- (86r6) – «ночевать», kiðlä- (76v8) – «скры- вать», oñalt- (46v5) – «исправлять», bolal- (25v2) – «размножаться».

III. Глаголы движения: ïzala- (5v17) – «отправлять», ïrğa- (135r8) – «ко- лебать», qumgul- (206r6) – «двигаться», anuqla- (92v9) – «готовить».

IV. Глаголы действия, работы в их состав входят следующие лексические единицы: ter- (142v4) – «собирать»; tök- (86v14) – «проливать», sağ- (157v20) – «доить».

V. Глаголы обоняния: bur- (77v2) – «протухнуть»; iriklän- (67v13) – «выпячить»; sez- (82v20) – «чувствовать».

VI. Глаголы видения: baq- (27r1) – «взглянуть»; telmür- (74r3) – «уста- виться»; kög- (29v2) – «видеть»; yüzlän- (113v12) – «посмотреть».

VII. Глаголы, возникшие на основе подражания звуку или действию: ïrgan- (16v4) – «стенать», çirlä- (32v19) – «щебетать, стрекотать», urla- (103v20) – «выть».

VIII. Глаголы слышания: eñit- (32v7) – «слышать»; tañla- (19v19) – «изумлять»; tañlan- (130r11) – «изумляться»; tinlä- (19v17) – «слушать».

Часть наречий в тюркских языках, в т.ч. и узбекском языке, составляют слова, выделившиеся из состава других частей речи. Большинство таких наречий сформированы на основе имен, частично из глаголов. Кроме того, состав лексем, относящихся к наречиям, обогащался и дополнялся за счет слов, заимствованных из других языков. В данном случае следует заметить, что из 52 наречий, использованных в языке «Кысасы Рабгузи», 33 - тюркские, 11 - персидские, 8 - арабские лексические единицы. В памятники есть несколько их групп в соответствие с семантическими свойствами: 1) наречия состояния: aqru (231v6) – «медленно», tärk (27r2) – «быстро»; 2) наречия времени: keðin (52v4) – «потом», añnu (8v5) – «раньше»; 3) наречия количества: öküš (13r6) – «много», kam (152v9) – «мало», bisyär (219v9) – «многочисленно», eñ (20r1) – «самый», ötä (80v16) – «очень».

Вспомогательные слова не обозначают лексического смысла, они показывают грамматическое значение лексемы, не имеют системы морфологических изменений и свойств словообразования, не используются как члены предложения. Они отражают такие отношения, как связывать слова и предложения, нагружать их

дополнительным значением, подчинять слова друг другу.

Послеслоги в тюркских языках сформировались из независимых частей речи. Но этот процесс проходил на протяжении долгого времени. Такие слова изначально использовались и в своем исконном значении, и в качестве послеслогов. Из 38 послеслогов, использованных в языке произведения, 14 являются чистыми послеслогами, 12 – послеслогами-существительными, 8 – послеслогами-наречиями, 4 – послеслогами-прилагательными, они делятся две группы:

1) чистые послеслоги: üçün – «для» (7v5), tara (6r9) – «в сторону»;

2) созадачные послеслоги, которые, в свою очередь, делятся на следующие группы: а) послеслоги-существительные: bašida/bašinda – «в начале» (69r2), içidä/içindä – «в, среди» (6v19); б) послеслоги-наречия: burun (90r4) – «раньше», berü – «с, со» (9r14); в) послеслоги-прилагательные: özgä – «другой» (8v14), azin (10v14) – «другой».

Как свидетельствуют письменные источники, **союзы**, используемые в современных тюркских языках, большей частью были заимствованы из иранских языков и арабского в различные отрезки развития, и начало их активного использования приходится на XIII-XIV вв. Поэтому в языке памятника встречаются союзы, относящиеся как к исконному, так и заимствованному пласту лексики; их можно разделить на две группы:

1) равные союзы. Эти союзы по функциям и смыслу, в свою очередь, делятся на следующие группы: а) соединительные союзы: taqı//dağı – «ещё» (5r2), uemä – «ещё» (9r12); б) разделительные союзы: yähud – «или, либо» (52v14), ba'zi – «некоторый» (31v18); в) противительные союзы: ammä – «но» (7v4), valekin – «но» (36r22); г) отрицательные союзы: nä – «ни» (9v1).

2) подчинительные союзы: kim (6v7), agar – «если» (6v2), ter (12r18).

Таким образом, в языке памятника использовано 27 союзов, 18 из них равные союзы, 8 – подчинительные союзы.

Частицы, бывшие в употреблении в памятниках, относящихся к XIII-XIV вв., имеют целый ряд особенностей, относящихся к их форменному изложению, использованию, семантическим свойствам. С этой точки зрения в произведении всего использовано 5 частиц, которые использовались на нагрузки дополнительным смыслом определенных частей выражения или их частей. Частицами, использовавшимися в языке, повести, являются



следующие: -mu/mü//mī//mī (153v13), -la//lā (22r18), -qīna/-kinā// ġīna/-ginā (19r18), -oq//ök (6v6), -ma//mä (5v16).

Как известно, **модальные слова** относятся к целому мнению или его части, и характеризуются неизменной формой, неупотреблением в качестве члена предложения, невхождением в синтаксические отношения с другими частями речи. В памятнике встречено 9 модальных слов: *maḡaḡ* – «развы» (27r14), *balki* – «может быть» (191v20), *baḡ* – «есть» (11v9), *yoq* – «нет» (7v5), *keḡāk* – «надо» (8v21), *kāṣki* – «если бы» (23r2), *ṣāyat* – «возможно» (128v3), *illā* – «но, кроме» (37v2).

Междометия, использованные в памятнике, весьма малочисленны, они служат для обозначения чувств, и различных переживаний человека. 6 междометий, зафиксированных в языке повести, выражают такие значения, как обращение говорящего к слушателю, восклицание, привлечение внимания: *eu* (5v20), *yā* (19r9), *hay* (81v5). Есть в произведении еще одна группа междометий, которые выражают волнение, переживание, изумление и озадачивание говорящего: *āh* (70r4), *vāu* (124v9), *yā* (245r1).

Статистическое изучение лексики произведения «Кысасы Рабгузи», считающегося памятником XIV века, позволяет создать полное понимание относительно количества лексических единиц в произведении, а также количества исконных и заимствованных слов и словесном мастерстве автора. В повести использовано всего 5511 лексем, 2950 из которых тюркские, 2151 – арабские, 329 – персидские, 55 – из иврита, 14 – греческие, 3 – китайские, 4 – из санскрита, 5 – согдийские. Как видно, в обогащении словарного запаса произведения наряду с тюркскими словами особое место занимали и заимствования.

В источнике, взятом в качестве объекта исследования, есть всего 3067 имен существительных (2517 из них имена нарицательные, 550 – имена собственные. 2252 из 2517 имен нарицательных - корневые слова, 265 – производные, 402 из 550 ономастических терминов - антропонимы, 83 – топонимы, 33 – астропонимы, 19 – зоонимы, 13 – названия идолов), 521 имя прилагательное (258 из них корневые, 253 - производные), 169 имен числительных (143 из них производные, 26 - корневые), 65 местоимений, 991 глагол (976 из них исконно тюркские, 4 – арабские, 11 – лексемы, образованные от персидских корней), 52 наречия (33 из них тюркские, 11 - персидские, 8 - арабские), 38 послелогов (14 из них корневые, 12 – существительных-послелога, 8 – наречий-послелогов, 4 – прилагательных-послелогов), 27

союзов (18 из них равные союзы, 8 – подчинительные), 5 частиц, 9 модальных слов, 6 междометий и 29 словосочетаний с изафетом.

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RODA IN DASTAN "KUNGIRAT"

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РОДА В ДАСТАНЕ “КУНГИРАТ”

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Аннотация: Записанный от народного сказителя Узбекистана Каххора Рахимова дастан «Кунгирот» (1) является одним из родов - отражающий формирование, наименование и распространения кунгиратов.

Ключевые слова: «Кунгират», ценность, исследования.

Исследование ценностей, родословного дерева, которые принадлежат к их роду все еще более заметно в Кунградском роде, чем в других. В частности, в Сурхандарьинской-Кашкадарьинской области пожилые люди спрашивают у своих новых знакомых о их роде. Им недостаточно просто ответить «Кунгират», но также сказать, что они Коштамгали, Вахтамгали, Хонджигали, Ойинли, Тортувли. Только после того, как будет сказано следующее деление рода, собеседник признает, что он принадлежит к кунгиратам.

Исследование семи поколений только начнется. В то время, окружающие вас люди окажутся родней друг с другом, как дядя-племянник, двоюродными братьями (сестрами). Представители кунградского рода в этом регионе

представляют собой длинные и долгие династии, что почти забыто в других узбекских родах.

Раз слово идет о Кунградском роде, этот дастан является устным произведением искусства и это не означает, что в нем нет точности, научности. В то время когда в научных брошюрах, которые обещают предоставлять информацию молодым людям на основе научных знаний нарушены научность, точность и искажены факты, в дастане «Кунград» имеет важность жизненность и реалистичность. Ибо его исполнители имеют высшее образование и изучают литературу, историю и национальную духовность более 40 лет, сравним доказательства о Кунградском роде приведенные в дастане «Кунград» с научной брошюрой Э. Холикова, М.



Лафасова и М. Рустамова под названием «Корни нашего наследия» [2].

То, что узбекский род состоит из 92 также подтверждены учеными, такими как Кармишев и Дониёров, которые провели специальные исследования в этой области. Авторы брошюры «Корни нашего наследия» пишут: «Кунграды делятся на несколько семей: тилаумат (в действительности тиловат-А.Э.), маулиш (в действительности мавлиш-А.Э.), чуллик (в действительности «с пустыни»-А.Э.), коратурсак (в действительности «кора курсок»-А.Э.) и другие. Они, в свою очередь, состояли из десятков маленьких кланов. Один Кунградский род Вахтамаги разделен на 66 групп».

В этом небольшом отрывке авторы настолько запутывают, что вы не верите, что книга была написана учеными. То есть:

1. Кунградский род изначально делится на пять ветвей: Коштамгали, Вахтамаги, Хонджигали, Ойинли, Тортувли (авторы грубо нарушили приведя Вахтамаги -Вахтамаги, Хонджигали - Канчигали, Ойинли - Айинни) превыше всего. Поэтому не разделив на эти пять делений (вместе с Тортувли), нельзя сказать, что Кунград делится на рода тилаумат, маулиш и так далее.

2. Как говорят авторы, Вахтамаги (в действительности Вахтамаги) не делится на 66 семян, а делится на 16 частей.

Мы знаем, что авторы не обращали внимания на обосновательные источники, когда писали о кунградских родах в своей брошюре, так что эта работа не является дополнением к науке в этой области, но дастан «Кунград» является более научной, точной информацией, чем научная работа, хотя и является художественной, из-за его способности давать больше точной и научной информации, мы сосредотачиваем наше внимание на дастан.

Маматкулбой старший сын Узбеклибоя, основателя девяноста двух родов узбеков, также его звали Гудрайби по его второму имени в юности (невесткам Конграданельза называть свекра, мужа, братьев и сестер мужа по имени, и это до сих пор сохранилось). От старшей жены Маматкулбой Гулзоды трое сыновей Киличбой, Урокбой, Чутбой, а от младшей жены Кумушбиби четверо сыновей по имени Аликулбекжон, Хайдар Бекжон, Жонимкулбекжон, Мулла Муродбек. По мере взросления детей у старшей жены Гулзоды и у трех ее сыновей возросло чувство обладания богатством. В результате Маматкулбой отправил своего старшего сына и старшую жену с четырьмя отарами скота на весенние поля

Олатова. А он сам переезжает в стану под названием Бухара. Глава племени Химмат Сардар перед тем как дать место Маматкулбою и его людям предлагает провести скачки. Маматкулбой оседлав своего бурого коня соревнуется с десятью наездниками Химмата Сардара. Смотрят, что впереди скачет конь бурого цвета. Когда люди спросили: «Кто пришел первым?», баковуллы ответили:

«Наездник на буром коне выиграл». За эту победу Химмат Сардар отдает (дарит) Маматкулбою дочку по имени Суллубека. От нее у Маматкуля сын, из-за того, что он подаро от его жены назвал его Тортувлибой. То, что Маматкулбой ездил на буром (красном) коне, и стал победителем пришедших с ними называли «с кунгиротли», а его самого «Кунгиротли бобо», «Кунгирот бобо».

Здесь стоит отметить толкование известного знатока фольклора Ходи Зарифова о термине Кунград (название рода). «Историки и этнографы называют «Кунград» одним из названий монгольских племен. Однако хочу сказать, что термин «Кунград» никак не связан с монгольским племенем «Кунград» в эпосе «Алпомиш». Этот термин состоит из трех слов. Первое слово «кун» - это древняя форма слова «овца», но в этом случае племенное имя. Второе слово «гир» - синий, бегущий, а третье - лошадь. Название племени происходит от слова «Кунгирот». Вторая часть термина «гир» также означает быстрый, серый, черно-белый, синеватый и синий. В сочетании с лошадью это означает «бегущая лошадь», бегущая лошадь. Слово «гирот» в дастане означает движение, скорость и цвет. [3] Следовательно, термин Кунград означает не современную бурую (красную, красную) лошадь, а племя бегущей лошади. Одно только название Мамаикулбоя в дастане «Кунгирот», «Кунгиротли» из-за того, что его лошадь выиграла скачки обосновывает слова учителя.

Спустя годы, когда враг вторгся в Бухару, Химматбексардор обратился за помощью к Кунградоте (Маматкулбой) и его сыновьям. Хотя Маматкулбой сам не идет на войну, он помогает Химматбеку выиграть отправляя своих сыновей и парней. Награждая победителей, он подарил старшему сыну Маматкулбоя (Кунградота) Аликулу Бекжону двойное клеймо и лошадь со двоянным клеймом на бедре. Второму сыну Жонникулу Бекжону временное одно клеймо и лошадь с одним клеймом, сказав, что это: «временный подарок, если он покажет себя, то мы продолжим как у Аликула Бекжана». Третьему сыну Хайдаркулу Бекжону Химматбек подарил свой Хонжиг (знак ханства) на память.



Четвертому сыну Муродбою младшему сыну Тортувлибеку подарил каждому по лошади и не выдал клейма беков.

Когда Кунгиротота спросил у своего старца мудреца Авлиехона о дарах Химматбека его сыновьям, старец Авлиехану так объяснил:

Бек Бухары подарил Аликулу Бекжану лошадь со сдвоенным клеймом: теперь сыновья Аликулараспространятся как ветвь Куштамгали, сыновья Жоникула Бекжана как ветвь Вактамгали так как ему дали ременное клеймо, а сыновья Хайдаркула Бекжана за знак хана в ветвь Хонжиги. Когда мулла Муродбой был слегка недоволен церемонией и расстроился, его сыновья разделились на ветвь Ойинли.

«А Тортовулбек пусть вот так себя воздерживает» - предсказал. В дастане сказитель Каххор приводит пять ветвей и шестьдесят четыре сучья рода Кунград в нижеследующем.

I. Куштамгали (от Аликула Бекжана): 1. Тулангит. 2. Тиловат. 3. Мавлиш. 4. Кора касмок. 5. Кал. 6. Зомбири. 7. Уртоки. 8. Чалика. 9. Чолбачча. 10. Куса. 11. Кучахур. 12. Банди чучук (его еще называют Бандикучук - А. Э). 13. Ок пичок. 14. Сарвибузар.

II. Вактамгали (от Жоникул Бекжан): 1. Бугажили. 2. Чумичли. 3. Кайчили. 4. Обокли. 5. Иргокли. 6. Гозоёкли (также называет Козокли - А. Э). 7. Кора кунгирот. 8. Чанокли (Чангчили). 9. Уюли (уюли). 10. Хондакли (хондакли). 11. Боймокли. 12. Ишкили. 13. Кегичли. 14. Коракошли. 15. Очамайли. 16. Кора тамгали.

III. Хонжигали (от Хайдаркула Бекжана): 1. Кулдовли. 2. Желкиллак (Жолкиллок). 3. Куртугай. 4. Молтака. 5. Кора. 6. Туокора. 7. Корабувра. 9. Дуска. 9. Гала. 10. Нугай. 11. Куюн. 12. Чуллик. 13. Улус. 14. Коракурсок.

IV. Ойинли (от Муллы Муродбека): 1. Ковга (Ковда). 2. Кочай. 3. Коракалпок. 4. Тупор. 5. Бешбола. 6. Чуран. 7. Туркманойинли. 8. Ходжибачча. 9. Калбек. 10. Кора ойинли. 11. Октана. 12. Ойтамгали.

V. Тортувли (от Тортувлибека): 1. Тугиз. 2. Ур. 3. Мунка. 4. Обокли. 5. Хуросон. 6. Чунок.

Именно эта информация поддержала эту классификацию в памяти общества. Это яркое доказательство того, что устной памяти также можно доверять. К сожалению, нам иногда приходится полагаться на рукопись, то есть на память письма, даже если она ложная.

Спелый сказителем Каххором дастан «Кунград» представляет собой произведение великого узбекского происхождения, художественную интерпретацию качеств его

родов, сохранение многих традиций и обычаев, а также этические критерии.

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INNOVATIVE TECHNOLOGIES OF PUBLIC WORKS IN SCHOOL TO FURTHER IMPROVE THE QUALITY OF KNOWLEDGE OF SCHOOLCHILDREN

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ANNOTATION

This article focuses on the professional orientation of social work in school to further improve the quality of students' knowledge in the public education system. The following is a classification of social work in schools developed in developed countries.

KEYWORDS: socialization, social work, school social work, mechanics, innovation, mission, need, assessment, special education, risk, personality, counseling, crisis, intervention, social skills.

АННОТАЦИЯ

В данной статье основное внимание уделяется профессиональной ориентации социальной работы в школе для дальнейшего повышения качества знаний учащихся в системе государственного образования. Ниже приводится разработанной нами классификация социальной работы в школе, на основе в развитых странах.

Ключевые слова: социализация, социальная работа, школьная социальная работа, механизм, инновация, миссия, потребность, оценка, специальное образование, риск, личность, консультирование, кризис, вмешательство, социальные навыки.

DISCUSSION

The social protection of the population with a radical change in the socio-economic situation during the years of independence of Uzbekistan is one of the priorities of the state policy. Therefore, a number of legal means have been introduced by our state in order to protect the population, families and children, to support them, to ensure their legal rights and freedoms. In particular, the Constitution of the Republic of Uzbekistan, the law of the Republic of Uzbekistan "On the family", "On guarantees of the rights of the child", "On education", the "convention on the rights of the Child" ratified by the Republic of Uzbekistan on December 9, 33-th resolution of the Cabinet of ministers "On additional measures to improve the material conditions of teachers and pupils' prisons" of 2002, Decree of the President of the Republic of Uzbekistan 2004, 21 May, "On the state national program for the development of school education "in 2004-2009 years", In the National Action Program "education for all", the law of the

Republic of Uzbekistan on the profilactics of offenses, dated May 14, 2014, the law "On social protection of persons with disabilities" in the Republic of Uzbekistan, dated February 7, 2017 of the Decree №4947 president of the Republic of Uzbekistan "On the strategy of actions for further development of the Republic of Uzbekistan", PD №5270 "On measures to radically improve the system of state support of persons with disabilities" on December 1, 2017, Decree of the President of the Republic of Uzbekistan dated February 2, 2018 No PD-5325 "On measures to radically improve the activities in the field of support of women and strengthening the institution of the family", Law of the Republic of Uzbekistan "On social services for the elderly, disabled and other vulnerable groups" of December 26, 2016, Law of the Republic of Uzbekistan "On State Youth Policy" of 2016, Law of September 8, 2017 "On Protection of Children from Information Harmful to Their Health", Resolution of the Cabinet of Ministers of the



Republic of Uzbekistan dated December 8, 2018 "On measures to organize international research in the field of education quality assessment in public education" and the Practical Work Plan of Uzbekistan with the United Nations for 2017-2020 "Road Map" and the President of the Republic of Uzbekistan, this article is specific to the implementation of the tasks set out in the Decree of April 29, 2019 "On approval of the Concept of development of the public education system of the Republic of Uzbekistan until 2030" and other relevant regulations.

The profession of "social work" in our country is one of the new professions and is of great importance in connection with the need for qualified specialists who carry out professional potential assistance to the population, various groups of the population, including people in need of social protection, provision of social assistance, care, adaptation and integration into society.

The profession of social work contributes to social change to the solution of the problems of human relations, as well as the distribution and release of opportunities for improving the well-being of people. Using theories about social behavior and social systems, social work occurs in places where people have entered into interaction with the surrounding world. Employees of social work should promote respect for human dignity, social justice by serving human resources, integrity.

Today, proceeding from the above points of view, local scientists recognize social work in different ways. Professor M.X.Ganieva, who is making a great contribution to the development of professional activity of social work in Uzbekistan, the social work in the opinion ".....socially lagging behind - the elderly, the disabled, the lonely, the underprivileged and the promotion of other categories of the population is evidence of the high level of development and culture of society. "Social work is an intangible concept of human relations with respect to a person all over the world - if viewed as such, Professor A.Vahobov:.....the aim of the social work is to provide this population with a generalized, social type of activity that is aimed at satisfying the socially guaranteed group, personal interests and needs of the people, including those who need social assistance." Also, local experts believe that the profession of Social Work helps to solve the problems of human relations to social changes and to provide for the improvement of personal well-being of people. Supporting the theories of human behavior and social systems, social work interferes with the work in which their interaction with the environment takes place. It is stated that the principles of human rights and social justice are fundamental principles for social work.

In our opinion, social work It is a professional activity that affects the well-being of the population, the group layers of the population, including the needy population, in general, families, the development of society at a high level.

Today, the future high level of development of society is connected with the conditions of education, social, economic, cultural, spiritual, educational, spiritual, spiritual, which are created for our growing youth, our children. In view of this, this article focuses on the position of the Child, Family, School team and society in the description of the professional professionalism of the social worker, which should be present in schools today, its theoretical bases of expressing an opinion on the activities of the social worker in the school.

Theoretical views, opinions of foreign scientists on social work in the school are diverse, they complement each other. In particular, in some literature, it has been suggested that "social work in school is a specific area of professional activity that works to improve the quality of education and improve social and emotional adaptation through direct service delivery, service coordination and promotion in the academic environment" as well as "school social workers should be able to meet the emotional and physical needs in order for the school to be able to perfectly cope with the academic function of teaching students, the school's social workers have all-round support for the strengths of children and families" other school representatives said, adding that "social workers in schools in the US have been providing social services to children and families for over 100 years and have become social work in school is an international profession that is practiced in many other countries. School social workers will protect the right of every child to day education" they say.

In fact, for the first time in the world appeared the definition of school social work by Jane Culbert in 1916 year. The definition focuses not on the individual child, but on the environment of the child and the school. The role of the social worker in the school; explain the extracurricular life of the child to the school; fill the knowledge of the teacher about the child so that he can learn the whole child and help the school to learn the neighborhood, the life of the neighbor, so that the children can be taught the life they look forward to. Secondly, the visiting teacher focuses attention on parents to understand the requirements of the school and to ensure the specific needs of the child. (Culbert, 1916, -P. 595).

The definition is filled with educational conceptions as a complex, interrelated process in school education - a process by which school social workers can support the interests of children. Most of these concepts have been in education for centuries: inclusion, respect for individual differences, and



developing education as a process that takes place in the classroom, family, and community.

In our opinion, in developed countries, the profession of social work in school operates to a certain extent with the fact that it is important to the development of territories through the development of the future generation.

This professional activity exists in 197 countries recognized by the United Nations. In five countries, more than 200 million people live, and in 73 countries, less than 1 million people live, which makes up 7 and a half billion people around the world and is growing by 1 percent year-on-year. Now we know about 53 countries where there are employees of social work in schools.

Countries covered by social work in some schools:

Australia, Austria, Argentina, Bahamas, Botswana, Bulgaria, Canada, China, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ghana, Greece, Guyana, Hungary, Iceland, India, Korea, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Mauritius, Mongolia, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Poland, Russia, Saudi Arabia, Singapore, Slovakia, South Africa, South Africa, Sri Lanka, Sweden, Switzerland, United Arab Emirates, Vietnam, United States of America.

There are 5 higher educational institutions that train employees of social work from Uzbekistan at the bachelor's level, so far more than 800 specialists have been delivered. These specialists work in children's homes, charitable homes, in the youth union, in the bodies of self-management of citizens, in the extra-budgetary pension fund, in the centers for rehabilitation of the population, women, children, in special schools.

In the same way, attention is paid to the employees of social work employed in the school, which is a new field for the system of public education that emphasizes us in our work, and below is a classification of activities of social work employees in the school, developed from the experience of countries developed by US.

JOB DESCRIPTION MISSION STATEMENT

The principal tasks of the school social worker are to help students and families make the best use of the available facilities and resources and to fully develop the individual capacity of each student. The school social worker provides an understanding of the impact of psychological development of children on the educational process on the interaction of family, community and cultural differences with the educational process.

In addition, the school social worker will provide the students and communities with the necessary professional skills to help them solve problems and stop conflicts in a safe and healthy way. Social work in the school is organized on the basis of the following activities:

- To analyze the reasons why some students fail and inadvertent behavior in school is evident and determined (environment, risk factors, including insecurity).

- To improve the flexibility of students at risk, it is necessary to reduce the negative conditions in familiestirishga to help.

- It is important that parents use school and community resources to help them maximize their educational abilities in children.

- It is important to create positive academic and social results in students through parental involvement in school.

The staff of social work in the school should be able to listen and respect the feelings and feelings of students and parents, proceeding from all cultural and ethnic values.

Education becomes a successful experience for schoolchildren, which helps to overcome social and emotional problems that prevent adaptation and success in school.

Special education and related services in schools should be provided to students with disabilities. (physical, mental, social, emotional, or other training.)

Social justice and equal opportunities created for all students and families serve to improve the quality of education and to realize the right to education for all.

DIRECT SERVICES WITH STUDENTS

The school social work worker applies appropriate social work methods in situations that affect the learning process of the student. These are:

- * Assess the needs of the reader
- * Encourage regular school attendance
- * Home visits
- * Promote safe, caring and drug-free schools
- * Advocacy for students
- * Provision of culturally competent services
- * Providing services to homeless students
- * Providing individual consultation
- * Facilitate group consultation
- * Self-esteem
- * Anger management
- * Impulse control
- * Social skills training
- * Prevent substance abuse
- * Providing crisis intervention services
- * Conducting case studies for full social

development



- * Participate in the assessment of places for special education
- * Participation in the development of plans to change behavior
- * Evaluate functional interests and develop supportive action plans
- * Providing short-term / long-term job management services to individual students
- * Preparation of abstracts for state institutions
- * Coordination of services with state institutions
- * Coordinate services with other disciplines within the school
- * Participation in the planning of welfare plans for students
- * Coordination of pregnancy prevention programs
- * Coordinate screening verification programs

Direct services of the social worker in the school with families and communities:

The school social worker will use appropriate social work methods to ensure positive, academic and social results for the students, they will:

- * Encourage parents' participation in schools
- * Encourage parents' participation in school conferences
- * Encourage parental responsibility for regular school attendance
- * Home visits
- * Family needs assessment
- * Promote safe, caring and drug-free schools
- * Participation in ensuring family cohesion / advocate
- * Provision of culturally competent services
- * Provision of appropriate services / referrals for homeless families
- * Provision of crisis intervention services
- * Contact with public institutions
- * Facilitate parental groups
- * Formation of parental skills
- * Prevent substance abuse (awareness)
- * Work with children with special needs
- * Prevention of child abuse
- * Relevant discipline
- * Helping families to interpret school policies and procedures
- * Cooperation with public organizations
- * Cooperation with support staff at the school
- * Participation in thematic conferences with other specialists of the school
- * Participate in identifying and addressing school / community needs
- * Interpretation of the position of school social work in society
- * Serve as a link between school / family / community

- * Involvement of students / families involved in the judicial system in the conduct of the case and participation in the management of the case
- * Serve at school committee meetings
- * Work in community inter-departmental groups and perform other tasks related to school social work (child mortality group, child protection group, governor's council)
- * Organize the school's anti-crisis team service to promote a safe school environment
- * Promote a safe, caring and drug-free school environment

PROGRAM PLANNING AND EVALUATION:

School social worker system, school and departmental program planning, evaluation and policy development helps and participates. All program planning and evaluation activities are carried out in accordance with state and local laws, regulations and school board policies.

Social work tools to achieve result in school:

- * Conduct personal and / or system surveys to assess the needs of schools and / or communities
- * Implement appropriate programs, groups and initiatives to achieve results in risk groups (as assessed)
- * Plan personal, school and / or system programs to promote a positive and caring school environment
- * Collaborate with community agencies to coordinate services in the school system

Malicious:

The social worker of the school serves as a protector for all groups, using the skills that take into account cultural and ethnic diversity and equality for each student and family.

Social work tools to achieve result in school:

- * Encourage the implementation of state education regulations
- * Responsibility for child abuse and neglect
- * For the school environment
- * Protection of children's interests in the best possible ways
- * Encourage parents to actively participate in children's learning
- * Compliance with the code of moral conduct and professional practice of the National Association of social workers.

Advice and training

The school social worker provides specialized counseling services to school staff, team members and other specialists. The services are designed to assist families, students and education professionals in providing quality activities that enable them to achieve the highest educational, developmental and social potential of their students.



Employees of social work of the school carry out services of the following directions:

- * Prophylactic control
- * Classroom management
- * Abuse and neglect in relation to the child
- * Mental health and emotional disorders
- * Family and psychological activities
- * Parent's participation in the life of the child
- * Maintaining a caring, safe and drug-free learning environment

learning environment

- * Identify barriers to education

In professional practice, development and management, the following applies:

The school social worker shows evidence of professional growth, development and management and adheres to the Professional Code of conduct.

• The international standards for school social work services and code of conduct (NASW) are used as a guide in the modeling of professional conduct that respects the values and ethics of the social work profession and helps to meet the needs of students, families and the school community. If necessary, an active study of control from a school social work manager or other school social work mature professionals.

• To be aware of the available community resources and to find out how these resources can be useful for the involvement of the reader, his / her family and the family in the learning process

• Understand and implement: state, local regulatory legal acts or decisions relating to pupils and families; for example /protect the child from various forms of violence, Special Education, attendance, educational rights, and privacy

• Consult with school staff to encourage compliance with laws, regulations and policies

• Practice pragmatic innovation through a variety of tools such as participation in regional and national conferences, participation in professional organizations, and being up to date with current research and literature

• Expand and share knowledge through consultations with coordinators, experts, psychologists, consultants and other colleagues

• Promote professional development through training and control of social work of educators

• Evaluate, interpret and implement research with a program specific to the concerns of the reader, family and society

• Develop and maintain skills that enhance the initiative and effectiveness of a social worker while working in school settings

• Time management based on the ratio of school social workers to students; protection of the ratio between workers and students developed by the National Council of state consultants for school social work services

• Maintain accurate and relevant business records and documentation

• Maintain statistical, demographic disruptions of the current workload

Training and licensing:

Employees of social work in the school receive education at the bachelor's and master's degrees. Educational directions include social work education topics:

- * consultation
- * social policy
- * diversity populations
- * groups at risk
- * practice
- * professional ethics
- * research
- * social and economic justice
- * family and community systems
- * theory and practice of social work
- * group processes and leadership skills
- * human behavior and development

CONTROL AND EVALUATION

Ideally, school social work supervision is carried out in two separate areas: administrative supervision and professional practice supervision. Each of these types of control is critical to the job performance and professional development of a school social worker.

ADMINISTRATIVE CONTROL:

Administrative control is carried out by the direct head of the social worker of the school. This type of control involves the monitoring of work schedules and the performance of assigned tasks. Under administrative control, the social workers of the school are assessed the relationship, written reports are prepared and public presentations are created. Some examples of the behaviors and characteristics of a school social worker who is supported and assessed in this area of control are as follows: punctuality, work habits, proper writing, appropriate use of language, respect for the school community and adherence to school policies and procedures.

Professional practice control:

Since social work workers in the school provide specialized services, they are encouraged to acquire relevant supervisory activism knowledge and skills in their professional school social work practices. This area of control activity is well provided by a highly qualified school social worker. This oversight includes support, evaluation of school social work services for individual and groups, consulting skills and practices, and educational presentations to school and community groups. When school social work workers perform clinical work,



they must be supervised by other professional social work workers.

In conclusion, we can say that the mechanism of activity of the social worker in the school proposed by US contributes to the formation of innovative technologies in public work in the schools of the system of public education of Uzbekistan and through this reduction of social problems in the school, improvement of cooperation of the family, child, school team and society.

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10. 10.2018 йил 8 декабрдаги Ўзбекистон Республикаси Вазирлар Маҳкамасининг “Халқ таълими тизимида таълим сифатини баҳолаш соҳасидаги халқаро тадқиқотларни ташкил этиш чора-тадбирлари тўғрисида”ги қарори
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SYNTHESIS OF 2,5-DIMERSAPTO-1,3,4-TIADIAZOLE DRESSING

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ANNOTATION

New dressing of 2,5-dimercapto-1,3,4-tiadiazole was synthesized. As a result of oxidation of 2,5-dimercapto-1,3,4-tiadiazole, 1,3,4-tiadiazole-2,5-disulfonic acid was obtained. Alkoloïd dressing of this acid was obtained and confirmed by element Analysis of the structure of the obtained compounds, infrared IK, 1H - and 13C-NMR spectrometers.

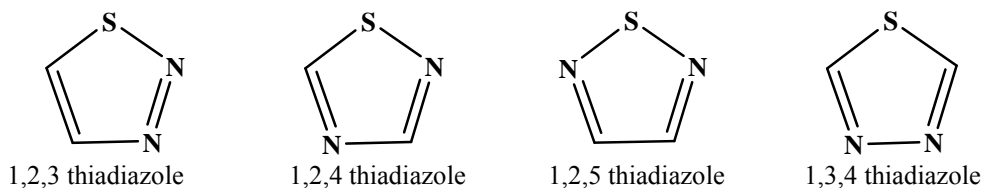
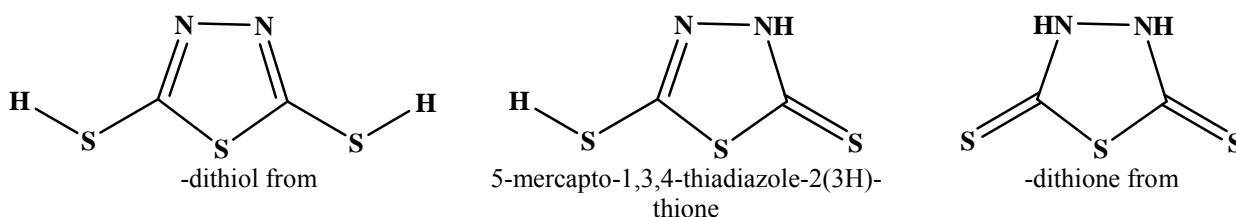
KEYWORDS: *synthesis, 2,5-dimerkapto-1 3 4-tiadiazole, 1,3,4-tiadiazole-2,5-disulfonic acid.*

INTRODUCTION

Organic chemistry is considered one of the main tasks of the synthesis and production of substances with a new curative property. To date, the interest of chemists is of interest in heterocyclic compounds and their stumping of various dressing in the pharmaceutical and chemical industries. 1,3,4-tiadiazole is a heterocyclic compound that is widely distributed and contains two nitrogen and sulfur atoms. There are several isomers of 1,3,4-tiadiazole,

including 1,2,3-tiadiazole, 1,2,4-tiadiazole, 1,2,5-tiadiazole, 1,3, 4-tiadiazole[1]. Scheme 1

Tiadiazol flew in ditiol and dition tautically in the dressing literature, where sulfur was stored. In fact, the most numerous first structure of three tautomer structure uchiredi was recorded in the literature[2].

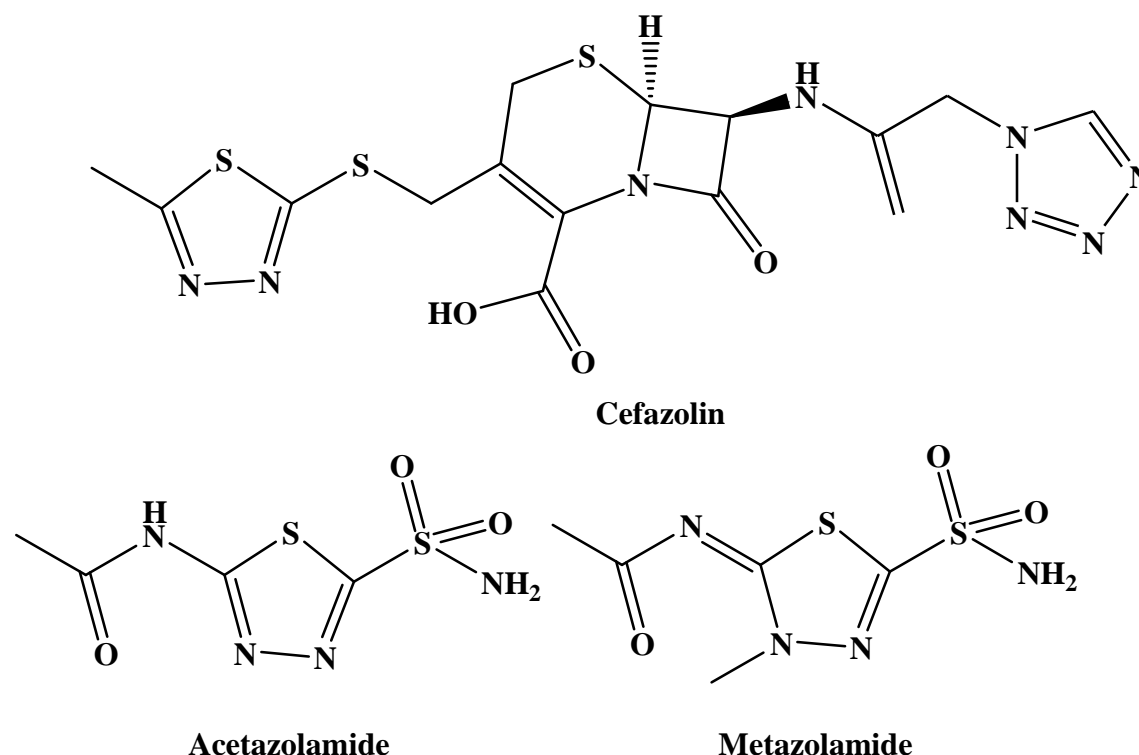
**Scheme 1.** Isomers of thiadiazole.**Scheme 2.** Three tautomer shapes

1,3,4-thiadiazole dressing is widely used in medicine, pharmaceuticals and agriculture[1]. 1,3,4-thiadiazole's new dressing is gaining etbor because it has a wide range of uses in different directions[3]. They synthesize new dressing 2,5-dimersapto-1,3,4-thiadiazole against microbes [4-6], against tuberculosis [7-11], against oxidation[12-15], against insulating[16-17], against seizures[18-20], antidepressants[21-22], against cancer[23-24], against fungi[25-26], against bacteria[27-28], against viruses[29-30] and others, so this study is has the wisdom in making.

1,3,4-thiadiazole dressing has a place in agrochemistry as herbicides, fungicides, insecticides[31], pesticide, bactericides and plant growth regulator with high salinity[1].

In its composition, thiadiazole is part of the cefazolin-antibacterial property cephalorins, which are stored, acetazolamide and metazolamides are among the substances of sulfanamide nature, which are considered to be an exceptional shade as a drug[32]. Scheme 3.

Scheme 3. The ingredients are the ingredients of the drug for sale, which thiadiazole stores





MATERIALS AND METHODS

Experimental

The percentage compositions of the elements (CHNS) for the compounds were determined using an elemental analyzer CHNS Model Fison EA 1108. The infrared spectra were recorded as potassium bromide discs using a Perkin-Elmer spectrophotometer GX. The ^1H (400 MHz) and ^{13}C (100 MHz) nuclear magnetic resonance spectra were recorded using the JEOL JNM-ECP 400 spectrometer. Ultraviolet spectra were recorded using Shimadzu UV-Vis spectrophotometer UV -2450, and EtOH was used as solvent. All reactions were monitored by TLC (aluminium foil-backed, 0.25mm silica gel 60 F254; Merck)(compound 1,2,3) [33]. The IR spectra of the compounds were recorded on an Avatar-320 spectrometer in KBr pellets and mulls in mineral oil, and the ^1H and ^{13}C NMR spectra, on a Mercury-300 spectrometer with a working frequency of 300 MHz, solvent $\text{DMSO}-d_6$ (compound 4-11) [35].

Synthesis of 2,5-dimercapto-1,3,4-thiadiazole (1)[33]:

A mixture of (99%) hydrazine hydrate (5 mL, 0.02 mol) and carbon disulfide (15 mL, 0.02 mol) with dry pyridine (50 mL) was refluxed for (5 h). Then the excess solvent was then distilled off, and the resulting solid was separated out by adding (25 mL) of water and (5 mL) of hydrochloric acid. The mixture was then filtered and the solid was recrystallized from ethanol.

Synthesis of 2,5-dihydrazino-1,3,4-thiadiazole (2) [33]:

To 2,5-dimercapto-1,3,4-thiadiazole (1) (1.5 g, 0.01 mol) dissolved in ethanol, hydrazine hydrate (5 mL, 0.02 mol) was added dropwise with stirring and the mixture was then refluxed for (6 h), then the excess solvent was distilled off. Filtered the resulting solid which was separated out on cooling and recrystallized from ethanol to give the desired product.

Synthesis of 2,5-di(arylhydrazono)-1,3,4-thiadaizoles (3) [33]:

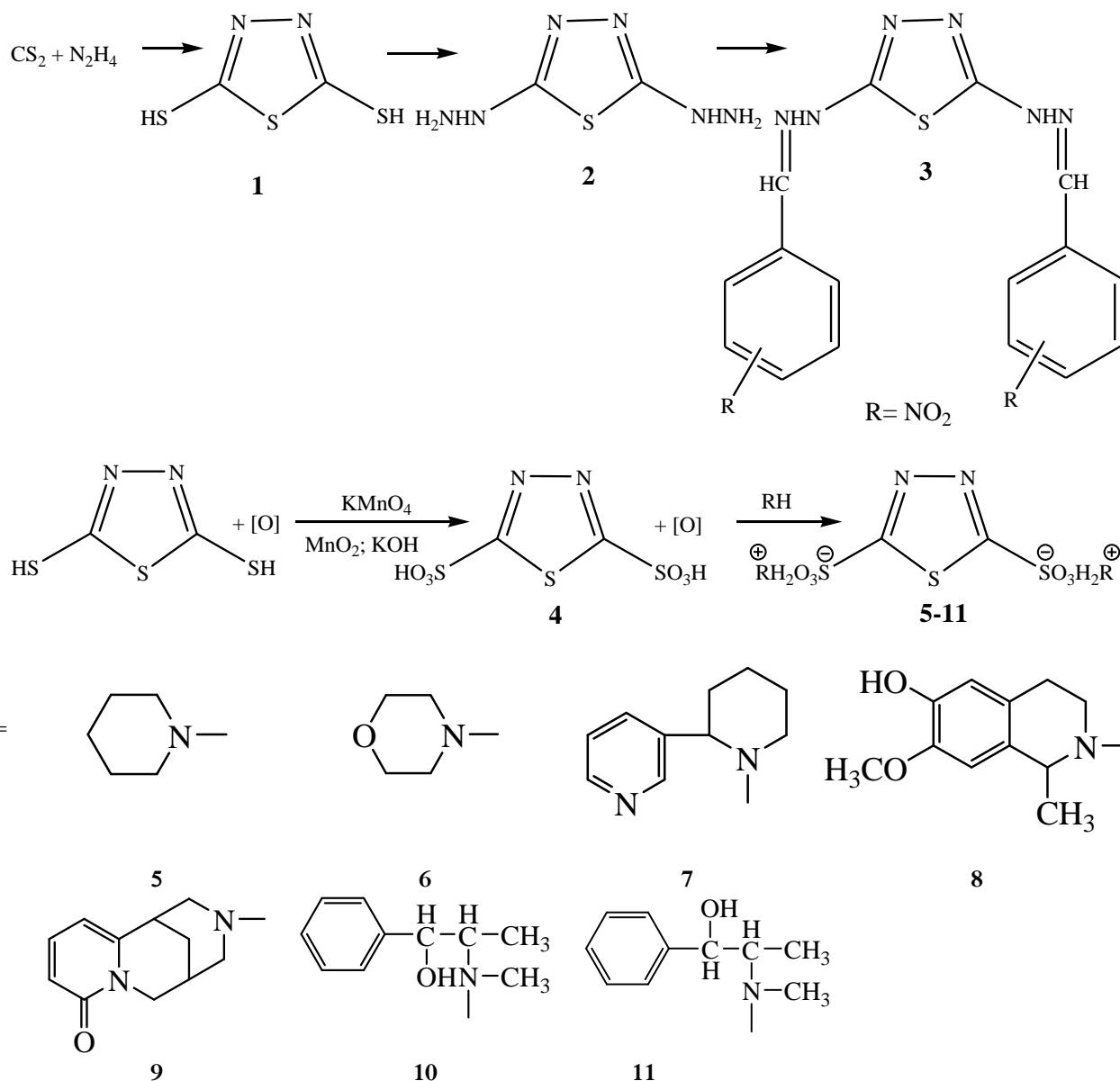
A mixture of (2) (1.46 g, 0.01 mol) in absolute ethanol (20 mL) and appropriate aldehyde (0.02 mol) was refluxed on water bath at (80 C) for (8 h). The crude product was isolated and recrystallized from ethanol.

Synthesis of 1,3,4-Thiadiazole-2,5-disulfonic acid(4) [35]:

A 2.5% aqueous solution of 6.32 g (0.04 mol) of KMnO_4 was added dropwise with stirring at room temperature over a period of 3 h to an aqueous solution of 1.5 g (0.01 mol) of 2,5-dimercapto-1,3,4-thiadiazole. The mixture was heated with stirring on a water bath until its complete decolorization. The precipitate of manganese dioxide was filtered off, the filtrate was evaporated, and the dry residue was washed with alcohol. 1,3,4-Thiadiazole-2,5-disulfonic acid 4 was recrystallized from ethanol-water, 10 : 1.

Synthesis of alkaloid- and amine-containing salts of 1,3,4-thiadiazole-2,5-disulfonic acid, (4--10) [35].

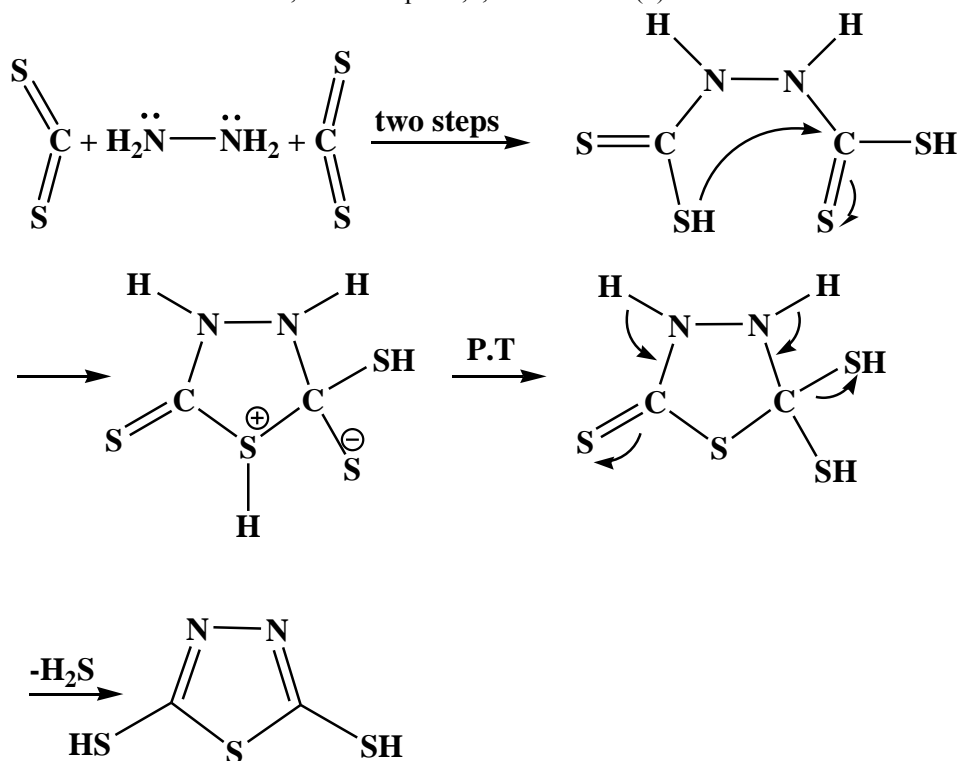
An aqueous solution of 0.02 mol of appropriate secondary amine or alkaloid was added dropwise with stirring over a period of 1 h to an aqueous solution of 2.46 g (0.01 mol) of 1,3,4-thiadiazole-2,5-disulfonic acid 4. The mixture was stirred at room temperature for 12 h and left in a vacuum desiccator to remove the solvent. The solid residue was washed with alcohol, filtered off, and recrystallized from ethanol-water, 10 : 1.

**RESULTS AND DISCUSSION****Table 1: Elemental analysis and physical properties of prepared compounds 1-11 [33,35]**

No	Formula	% Yield	m.p(C)	Elemental analysis calc. (found)			
				%C	%H	%N	%S
1	C ₂ H ₂ N ₂ S ₃	62	164-166	15.99 (15.98)	1.34 (1.35)	18.65 (18.64)	64.03 (64.04)
2	C ₂ H ₆ N ₆ S	60	198-200	16.43 (16.44)	4.14 (4.15)	57.49 (57.50)	21.94 (21.93)
3	C ₁₆ H ₁₂ N ₈ O ₄ S	65	187-189	46.60 (46.61)	2.93 (2.92)	27.17 (27.18)	7.78 (7.79)
-4	C ₂ H ₂ N ₂ O ₆ S ₃	98.0	>350	9.67 (9.76)	0.90(0.81)	11.30(11.38)	-
5	C ₁₂ H ₂₄ N ₄ O ₆ S ₃	76.9	>350	34.7(34.62)	5.72(5.77)	13.35(13.46)	-
6	C ₁₀ H ₂₀ N ₄ O ₆ S ₃	66.9	>350	28.5(28.57)	4.64(4.76)	13.25(13.33)	-
7	C ₂₂ H ₃₀ O ₆ S ₃	42.8	>350	46.39(46.32)	5.20(5.26)	14.84(14.74)	-
8	C ₂₄ H ₃₀ N ₄ O ₆ S ₃	52.6	>350	50.81(50.88)	5.38(5.30)	9.81(9.89)	-
9	C ₂₄ H ₃₀ N ₆ O ₆ S ₃	70.0	>350	46.00(46.01)	4.70(4.79)	13.51(13.42)	-
10	C ₂₂ H ₃₂ N ₄ O ₆ S ₃	50.1	>350	45.89(45.83)	5.50(5.56)	9.82(9.72)	-
11	C ₂₂ H ₃₂ N ₄ O ₆ S ₃	56.1	>350	45.77(45.83)	5.44(5.56)	9.70(9.72)	-



The mechanism for the formation of 2,5-dimercapto-1,3,4-thiadiazole (1) is shown in Scheme 5:



Scheme 5. Reaction mechanism for the preparation of compound 1.

Electronic Absorption Spectra:

The electronic spectra of the synthesized diaryl hydrazone compounds (3-12) dissolved in (EtOH) gave the (λ_{\max}) absorption bands at about (224-497 nm) for all compounds. The (λ_{\max}) are listed in Table 2:

Table 2: Electronic data of compounds 3

No	Ar group	λ_{\max} (nm)/ Ethanol
1	3-nitrophenyl	266

The spectral pattern data (Table 2) is found to be quite similar to other 1,3,4-thiadiazole derivatives reported in earlier literature [34].

FTIR spectra

The important diagnostic bands in the IR spectra were assigned and the bands positions are compiled in Table 3. The FTIR spectrum of compound (1) showed a medium intensity band at 1624 cm^{-1} that could correspond with (C=N) stretching in the vicinity of 1,3,4-thiadiazole ring. In this spectrum there are two other characteristic bands at 3200 and 2550 cm^{-1} due to (N-H) and (S-H) stretching

vibrations, respectively. From this we can say that this compound can exist in the thiol and thion form. On the other hand, the FTIR spectrum of 2,5-

dihydrazino-1,3,4-thiadiazole (2) showed the disappearance of band at 2550 cm^{-1} for $\nu(\text{C-S})$ with a new band at 3396, 3271 and 3200 cm^{-1} which are assigned as $\nu_{\text{asym}}(\text{NH}_2)$, $\nu_{\text{sym}}(\text{NH}_2)$ and $\nu(\text{NH})$ group, respectively. These bands proved the conversion of compound (1) to (2). Moreover, compound (2) showed characteristic IR bands at 1284 cm^{-1} $\nu(\text{N-C}=\text{C})$, 1109 cm^{-1} $\nu(\text{C-S-C})$ thion ether linkage and 1247 cm^{-1} $\nu(\text{N-N})$. A comparison of the FTIR spectrum of compound (2) with the spectra of compounds (3) revealed in the case of these compounds (ν_{asym} , ν_{sym} NH_2) were absent. The other characteristic bands are listed in Table 3.

**Table 3: FTIR data of compounds 3**

N ^o	Ar group	FTIR bands (cm ⁻¹) ν (C=N)
3	3-nitrophenyl	1623 Asymmetric (ArNO ₂)N-O stretching, 1523, Symmetric (ArNO ₂)N-O stretching, 1350

Table 4: ¹H- and ¹³C-NMR data of compounds 3

N ^o	¹ H- and ¹³ C-NMR spectral data
3	¹ H-NMR (400 MHz, DMSO-d ₆): δ 5.43, 5.87 (2H, 2s, 2 N=CH-), 7.78-8.52 (8H, m, Ar-H), 9.74, 10.06 (2H, 2s, 2-NH, exchangeable with D ₂ O). ¹³ C-NMR (100MHz, DMSO-d ₆): 115.65, 117.32 (2C, thiadiazole carbons), 122.61, 125.42 (2C, 2 N=CH-), 134.11-140.76 (12C, aromatic carbons).

The structure and composition of 4-11 were confirmed by IR, ¹H NMR, and ¹³C NMR spectroscopy, and also by elemental analysis[35].

The IR spectra of all the onium salts synthesized contain characteristic absorption bands of the thiadiazole ring at 680, 730, 1400, and 1500 cm⁻¹, bands in the range 656-649 cm⁻¹ assigned to -SO₃ - vibrations, and absorption bands at 3501+/-3421 cm⁻¹ characteristic of secondary ammonium salts [36].

In the ¹H NMR spectra of 4-11, recorded in DMSO-d₆, protons of the ammonium group appear as an ill-resolved multiplet centered at 14.6 ppm. The chemical shifts of signals from protons of alkaloid and secondary amine fragments have typical values [37].

In the ¹³C NMR spectrum of 1,3,4-thiadiazole-2,5-disulfonic acid 4, the heterocyclic carbon atom appears as a singlet at 168.0 ppm. In the ¹³C NMR spectrum of piperidinium salt of 1,3,4-thiadiazole-2,5-disulfonic acid 5, the heterocyclic carbon atom appears as a singlet at 158.4 ppm, and carbon atoms of the piperidine fragment give signals at 23.1, 25.5, 26.0, 42.5, and 45.5 ppm[38]

CONCLUSION

This article examined the substances synthesized, studied the reaction time was synthesized in 2,5-dimercapto-1,3,4-thiadiazole dressing. The resulting substance was confirmed in a spectroscopic analysis. As a result of oxidation of 2,5-dimercapto-1,3,4-thiadiazole 1,3,4-thiadiazole-2,5-disulfonic acid is obtained and the synthesis of alkaloid dressing of this compound.

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DEFECTS IN PHARMACEUTICAL ACTIVITY: IMPACT ON THE HEALTH, ECONOMY AND SAFETY OF THE POPULATION

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ANNOTATION

The article analyzes the state funds allocated for the development of the pharmaceutical industry, the quality of medical care provided, the indicators of population health and a number of problems hindering the development of the pharmaceutical industry, their impact on the health, economy and safety of the population. Also, proposals have been developed based on the development of the sector.

KEYWORDS: *Pharmaceuticals, pandemics, safety, public health, psychotropic drugs, natural remedies, strategy, monitoring, health insurance.*

DISCUSSION

The global spread of the coronavirus pandemic caused a global crisis, negatively affecting the economic and social situation in almost all countries. It is observed that the crisis caused by the pandemic differs from other world crises in different aspects, its negative impact on the economy is very high.

In our country, in the current test situation, ensuring that the daily need goods and the necessary food products are adequate, preventing the unreasonable increase in prices, full satisfaction of the need for medicines, economic support of the low-income part of the population are considered one of the urgent tasks.

The losses of the budget of Uzbekistan due to the pandemic are estimated at 4.4 trillion soums and the total cost of the measures taken to support the population, economic sectors and business entities during the pandemic period is 62 593 billion soums (6.13 billion US Dollars) [1]. He also borrowed \$ 1 billion from the Asian Development Bank of Uzbekistan (ADB), the International Monetary Fund (IMF) and the World Bank to fight against coronavirus[2].

Today, the Republican pharmaceutical sector is not able to supply the necessary medical

products and medicines, in particular disposable medical gloves and masks, various antiviral drugs and antibiotics, infusion solutions and other medical items in the necessary volume to combat pandemics.

The fact that the price of antiviral and antipyretic drugs in pharmacies is unreasonably increased several times, causes a lot of distress among the population. These cases require further development of the pharmaceutical industry of the Republic.

Therefore, the rapid development of the pharmaceutical sector, the attraction of foreign investments, the implementation of investment projects of leading foreign companies, the promotion of the creation of innovative pharmaceutical products, the volume of production of local producers and the increase of export potential became one of the pressing issues.

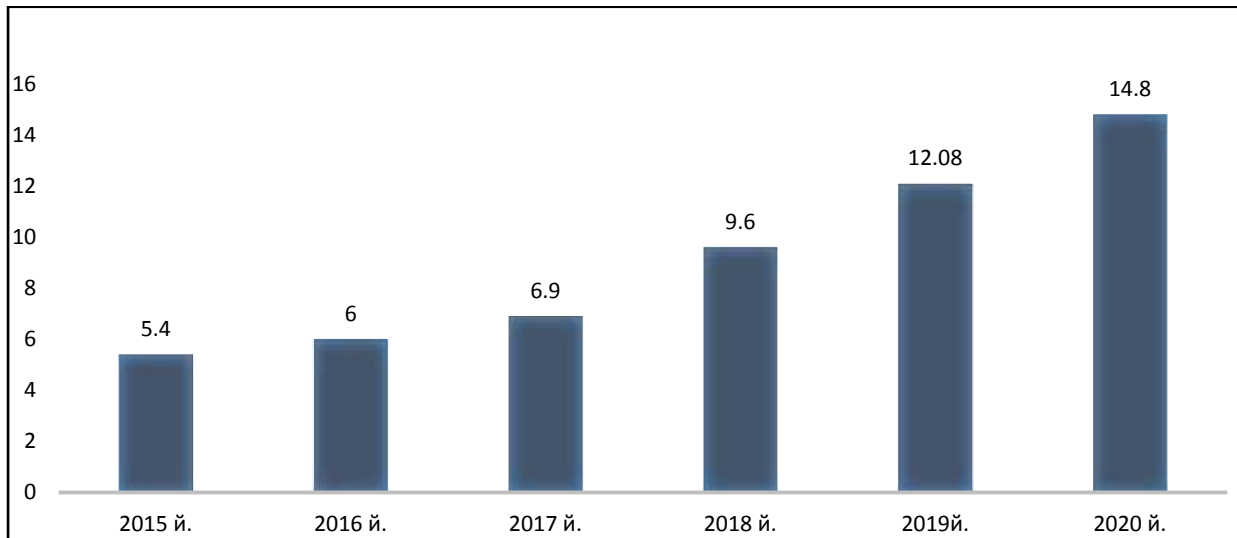
In the framework of the conceptions of the Republic of Uzbekistan on the development of the health care system, support of the healthy lifestyle of the population and increasing the level of physical activity in 2019 – 2025, measures are being taken to ensure the effectiveness, quality of medical care and the possibility of its use by the entire population, introduction of modern achievements



In 2014, more than 520 billion soums of pharmaceutical products were produced in the Republic, in 2018 more than 1.5 trillion products and in 2019 more than 1.73 trillion soums were produced, or growth was an average of 3.3 times. The volume of products produced during this period grew 4 times on average, ready-made medicines amounted to 360 million, medical products more than 490 million conditional units[3].

In recent years, the amount spent on health care products, including pharmaceutical products, has

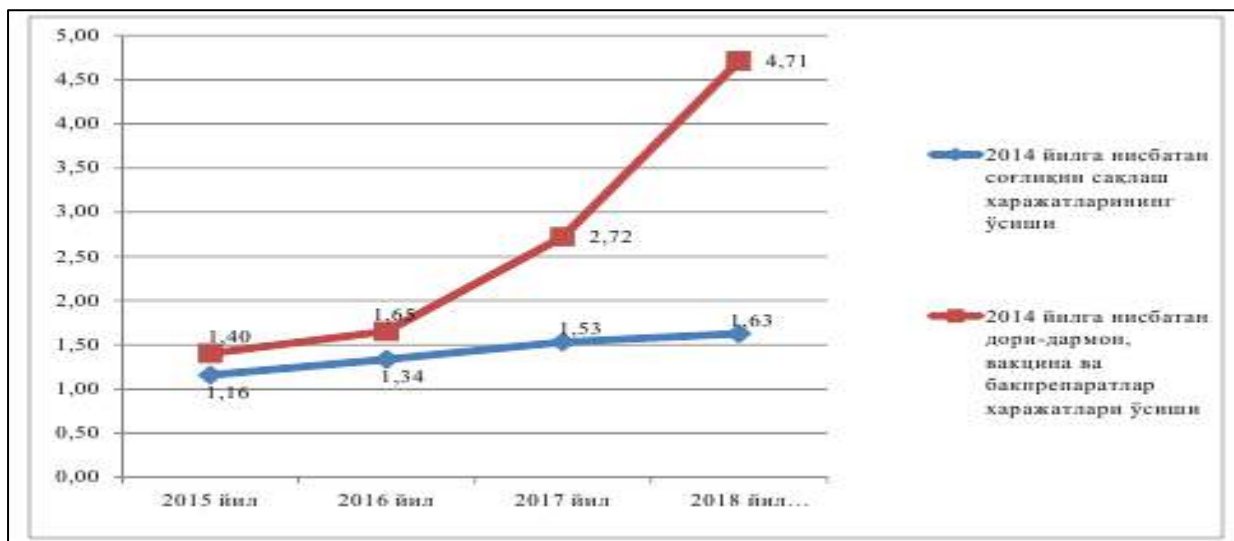
been increasing year by year. In particular, in 2020, the expenditure allocated from the state budget for the health sector amounted to 14.8 trillion sum or to 2019 year (12,08 trillion. the sum) increased by 33.6 %, accounting for 11.3 % of total expenses and 2.3% of GDP. From this, the cost of medicines and fasteners is 1,43 tlrn. sum or made up to 2019% more than 30 years.[4] The dynamics of funds allocated from the state budget can be seen in the picture below (picture 1).



1-picture. Funds allocated from the state budget to the health sector[5] , trln. sum

In 2020, the volume of funds allocated to the sector from the state budget increased by 2.74 times compared to 2015. Also, the amount of funds

allocated to health institutions and drug addicts also increased year by year (Figure 2).

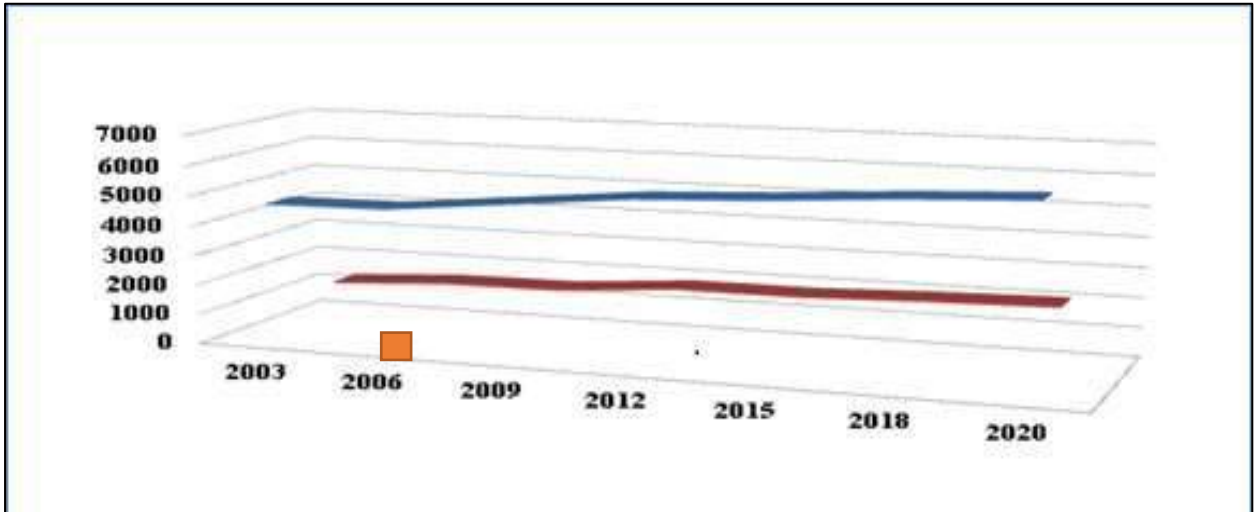


2-picture. Dynamics of growth of funds allocated to health institutions and drug addicts[6]



In addition to the increase in spending, the number of primary diseases and general cascade is also growing in the country. From 2003 to the present day, the number of primary diseases in the Republic increased by 1.6 times (from 1290,8 ± 2.05 to 2069.2

± 2.4 per 100000 population), while the total number of diseases increased by 1.3 times (from 4671.6 ± 3.8 to 6062.0 ± 4.1 per 100000 population) [7] (Figure 3).

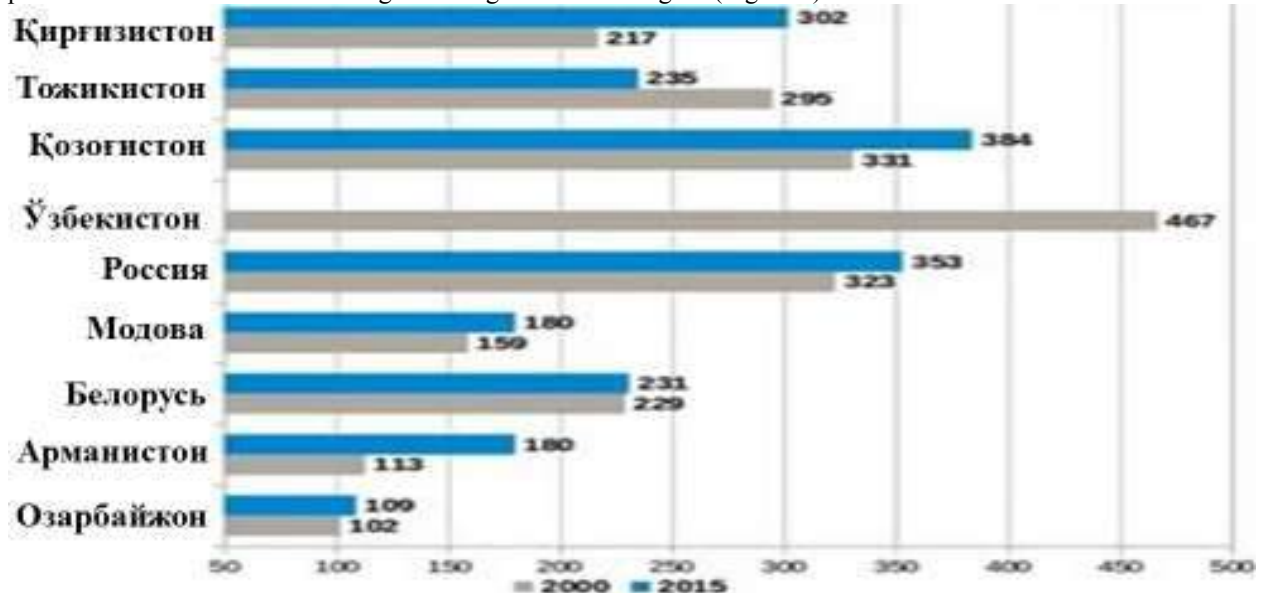


■ - general diseases ■ - primary diseases

3-picture. Dynamics of growth in the number of primary diseases and general diseases

Also, according to the World Health Organization, Uzbekistan occupies one of the leading places in the world in terms of digestive organs and

tuberculosis[8]. Below you can see the situation between the states on the disease of the digestive organs (Figure 4).



4-picture. Dynamics of the number of diseases of the digestive organs by countries

From the above-mentioned statistics, we can conclude that the increase in the number of these diseases was influenced by the following factors:

the deterioration of the environmental situation on a global scale, including in Uzbekistan, in recent years;
Presence of problems with the drying of the Aral Sea;



the degree of contamination of the environment with waste gases (from cars, factories and factories), which are harmful to the human body, etc.

The government pays great attention to the pharmaceutical sector in terms of reducing the number of diseases, treatment and Prevention in the Republic.

Today, 202 local enterprises producing pharmaceutical products operate. Of these, 95 of them specialize in the production of various medicines, 23 of them produce medical equipment, 62 of them produce medical products and 11 of them produce medicines, as well as medical products. 9736 medicines are allowed to be used in medical practice, including 2634 domestic medicines, 1759 medical products (284 of them are local), as well as 1666 medical equipment (78 of them are local) are produced[9].

Every year, the Republic exports more than 5 thousand tons of plant raw materials and medicines produced on its basis in the amount of more than 18 million US dollars. It is noteworthy that by 27 enterprises of domestic production, medicines belonging to 25 pharmaceutical groups and medical products with 10 names are exported to 14 foreign countries, including the United States, Germany, Russia, France and other countries. The volume of products exported by enterprises amounted to 22.1 million in 2019. It amounted to US dollars. 6 new pharmaceutical markets-the markets of South Korea, Turkey, Moldova, Tajikistan, Belarus and Yemen have been mastered[10].

However, on the basis of medicinal plant chamomile, the level and volume of serial production of high-demand medicines is not enough. Most pharmaceutical enterprises are limited to the production of simple formula drugs, anti-inflammatory and diagnostic agents, drugs in the field of toxicology, gynecology, obstetrics, immunology, hematology, oncology and dentistry are practically not produced (less than 10 percent).

Therefore, currently, the drugs produced in the country's pharmaceutical enterprises cover 21 percent of the population's need, 79 percent of medicines are imported from abroad. In 2016, it raised \$ 873 million. In the case of import of drugs worth USD 926,8 million, in 2019 year this figure will increase by 926,8 million. made up of dollars[11].

In 2020, 1491.8 billion was allocated from the state budget for the purchase of medicines and medical products. the sum was allocated (6.5 times compared to 2016 or nearly 36 percent more than in 2019) [12].

The analysis of the current state of the pharmaceutical sector of the Republic of Uzbekistan

shows that the local pharmaceutical network does not adequately satisfy the needs of the population and treatment and profiling institutions for pharmaceutical products.

In particular, the pharmaceutical industry lags behind such sectors of economically developed countries in terms of the types of products being produced. Currently, the share of the pharmaceutical market in the total volume of the domestic pharmaceutical industry in developed foreign countries such as the United States, Germany and France is 75 percent[13].

Today, the demand for natural medicines in the countries of the world has increased by 6-7 percent per year, according to international experts, in 2020 the annual turnover will exceed 35 billion dollars. Countries such as China, India, Canada and the United States have great experience and opportunities in growing wild, keeping medicinal and spice plants, breeding by cultural plantation method. More than a thousand of 12 thousand species of medicinal plants are used in world countries, while in Uzbekistan 112 of 1.2 thousand species of medicinal plants are used in pharmaceutical industry[14].

The lack of adequate Organization for the introduction of international standards in domestic manufacturing enterprises, including the requirements of "Necessary production practice" (GMP), "Necessary pharmaceutical practice" (GVP) and ISO 13485, which regulate the quality and safety of medicines in pharmaceutical enterprises, limits the possibilities for the production of competitively effective and safe pharmaceutical products in the foreign and domestic market.

Despite the reforms carried out in the field of population health, there are a number of problems that hinder the quality of medical care provided, the indicators of population health and the development of the pharmaceutical industry. Specially:

the only strategy for sustainable development of the pharmaceutical sector has not been developed;

there is no systematic monitoring and control over the provision of treatment facilities and population with medicines, parts for medical purposes;

research activities of pharmaceutical network institutions are not at the level of modern demand.

If we analyze the number of pharmacies by population at the crossroads of countries, then experts of the International Pharmaceutical Federation (IPF) note in which state the health system of this state is developed, if a pharmacy with a population of not less than 100 thousand people corresponds. If every 100 thousand inhabitants have more than 40



pharmacies, they consider that there is a defect in the system of public health care[15].

While the increasing number of pharmacies in Uzbekistan provides an opportunity to fully meet the population's need for medicines, on the one hand, on the other hand, creates a basis for the development of a prosperous economy, that is, the volume of production of counterfeit medicines increases, tax evasion cases increase and leads to the enrichment of entrepreneurs in some joints.

Developed foreign countries in the practice of the USA, Germany, Japan, South Korea and other countries, pharmacies operate only in hospitals and clinics. As in Uzbekistan, there are no multi-storey houses, markets, public places, stops and pharmacies in other places.

In European countries, the activity of pharmacies is divided depending on the category of drugs. For example, in Germany, all drugs are divided into three categories: the first category – drugs that are allowed to be freely and everywhere to sell, that is, vitamins that have little effect, cocaine teas and tinctures, healing loy (balms), plasters, zinc, rejuvenating creams, means of dezinfection. To the second category – without prescription, that is, drugs that are sold only in pharmacies without a paper that the doctor will write out (for chronic diseases). When buying these drugs, the patient pays money from his wallet. Drugs of the third category-are sold only by prescription. In Germany, almost all citizens pay the insurer (private or state)the money for drug preparations that can be purchased at the pharmacy on the basis of a doctor's prescription, as medical insurance is provided. The population uses more drugs of the third category. This is due to the fact that the medicine is taken into the insurance account and is treated under the responsibility of the doctor.

Also, Germany does not have a network of pharmacies that belong to a particular concern or person, unlike other countries around the world.

The fact that pharmacies in Uzbekistan are becoming more and more popular can be explained by the following: without prescription sale of drugs; non-compliance of pharmacies with the health authorities; high level of advertising of drug preparations through the media (just like the advertisement of the konfet); increased production of new drug preparations for the treatment of the disease (depending on the low cost); the fact that the volume of drugs entering from abroad, that is, imported (legally or illegally), increases year by year; the population's confidence in various statements about medicines for the treatment of the disease; the fact that some entrepreneurs increase the number of pharmacies for the purpose of enrichment, lobbying, etc.

Some experts associate the increase in pharmacies with an increased incidence of disease types. Such a look cannot be called correct, because for the last 20-25 years the number of diseases has not increased by a hundred times. Even if there is an increase, it is unlikely that this occurred as a result of an increase in the number of drugs.

An increase in the number of pharmacies also leads to an increase in the volume of sales of psychotropic drugs and counterfeit drugs. According to available information, the penetration of psychotropic drugs "lirika", "tramadol" and other precursors into Uzbekistan is carried out on a large business pyramid. The drugs enter from Turkey to Uzbekistan from the border regions of Kazakhstan and Kyrgyzstan through bypass roads. This situation, in turn, has a negative impact on security, public health and the economy.

If we describe security as a system of protection of the vital interests of the individual, society and the state, ensuring equal and independent participation of the state in international relations, ensuring sovereign and progressive development, a system of protection against external and internal risks that threatens the internal stability of the country, it will be worth noting the ongoing coronavirus pandemic, its consequences Also, the occurrence of various diseases among the population, the increase in the level of poverty as a result of the increase in the funds spent on treatment, the increase in the share of spending allocated from the state budget to the health care system and, in some cases, the increase in dependence on imports of drugs leads to an increase in the

Today, the impact of the increasing volume of pharmaceutical products and the number of pharmacies on the health of the population, the economy and public interest (security) will be explained as follows:

Impact on Population Health:

today, there are a lot of cases of non-commercial use of drug preparations (synthetic and semi-synthetic), which adversely affect the body of a person taking them arbitrarily, brain cells, the condition of the liver (chronic hepatitis, cirrhosis) and kidneys, the activity of the gastrointestinal tract;

incorrect diagnosis and improper treatment of the patient by doctors who do not have a special specialty (there is a doctor's diploma, but there is no certificate and practical experience is not enough) ;

consumed fresh-a new type of medication will not only cure a certain disease in the body, but also harm other organs and reduce the protected level of the immune system of the populationtiradi (the patient's body will not be able to fight the disease



because of the fact that it receives artificial medicines).

Impact on the economy:

as a result of a decrease in immunity among the population, the expenditure of budgetary funds for the purchase of other types of expensive drugs increases;

the amount of funds allocated to the pharmaceutical industry from the state budget increases, and a large part of the population's income is also spent on medicines for treatment;

the state of deviations of the currency for medicines import is increasing;

as a result of uncontrolled use of medicinal preparations, other diseases also arise, a large amount of money is spent on its prevention and elimination of consequences;

the fact that the information in the advertising information does not correspond to the current situation causes the rightful dignity of consumers, and the drugs purchased through advertising cause harm to the health and material interests of the population.

Impact on safety:

socially, as a result of uncontrolled, that is, resale of drugs, it is irreparable in patients and leads to the development of other diseases that pass from generation to generation;

causes an increase in the level of lobbying and reparation in the production of medicinal products and in the treatment system of patients;

a further increase in the volume of sales of drugs with psychotropic substances in the composition radically changes the foundations of the worldview, spiritual upbringing, values and life of the growing generation to the bad side;

in some cases, the drugs purchased do not benefit the patient. This is followed by increased moods of insecurity and dissatisfaction of the population in relation to the state.

In order to eliminate these problems and shortcomings, to develop the pharmaceutical industry, to be ready for any situation with pandemic diseases (the second wave or the spread of other potential viruses) and to provide the population with quality, safe and effective medicines produced at affordable prices, it is recommended to carry out the following:

1) to create the opportunity to carry out research, laboratory work in the field of media, to work on test systems and vaccines;

2) from the German experience, it is necessary to divide the sold drugs into categories and establish a strict restriction on the sale without a doctor's prescription;

3) to review the activities of pharmacies completely and establish control over them of the

relevant bodies and organize their activities in the structure of private or public clinics;

4) to introduce a system of drastic measures against pharmacies selling counterfeit or psychotropic drugs secretly;

5) establishment of production of natural medicines and tinctures on the basis of local plants, mineral and biological raw materials;

6) development of the necessary information structure "electronic record", "electronic prescription" and "electronic outpatient card" having the opportunity to combine pharmacies into a single information system, as well as the introduction in the primary health care institutions;

7) to introduce a system of strict pricing of drugs of local production, that is, to organize the provision that the cost of medicines will be the same in all pharmacies;

8) to promote a healthy lifestyle, observance of personal hygiene and a wide range of proper nutrition, the formation of responsibility of Citizens for the health of their own and those around them, as well as to increase their medical culture and literacy, aimed at preventing the use of medicines by themselves;

9) implementation of a system of licensing the activities of treating doctors every five years to improve the system of ensuring the health of the population;

10) to accelerate the implementation of compulsory medical insurance system.

We believe that the above proposed proposals will facilitate the implementation of state programs in the field of health care, the regulation and development of the activities of the pharmaceutical industry, the improvement of the activities of pharmacies and the sale of prescription drugs, the establishment of control over them, first of all ensuring security, the reduction of damage to the national economy and

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MULTIPLE LINEAR REGRESSION MODEL OF UNDERGRADUATE STUDENTS' ACADEMIC PERFORMANCE AT UEAB, KENYA

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ABSTRACT

Generally, the University students have a vast variety of subjects in the core area which is sometimes problematic for the students to comprehend. They have chosen social media or rather internet, where there is a lot of learning materials concerning the area of their specialty. Predicting the academic performance of the students helps the instructor to develop the virtuous understanding of student's community and take the fit procedures to make their learning comfortable. MLR was used to build a model which predicts the performance of the students in the discipline of Statistics. Based on the collected data, the predictors of this model focused on how many hours spent on the social media. The predicted Cumulative GPA at every academic semester period was the dependent variable. The results revealed that the predicted model scores gives a better accuracy with M_1 through M_3 in the range of $\pm 5\%$ from the original scores. Therefore, the instructors can analyze the performance of the students and can also extemporize the teaching techniques used based on the result, of not only Statistics students, but also other areas they handle.

KEY WORDS: Multivariate Linear Regression, Grade Point Average, Students, Social Media, Academics.

1. INTRODUCTION

Introduction to Probability theory & Statistics (STAT 150) is a compulsory first year course for all students undertaking science related courses at UEAB. Poor performance in this course has been over the years seen by students not only restricted to Kenya, but to Colleges and Universities of other countries, for example, USA [3]. Other subjects for which poor performance of students have been noted and have been therefore subject of research studies. Examples of such studies are found in [6, 8 & 9].

Almost every Science student is required to take the corresponding statistics course which is highly impacted over their area which they have chosen to pursue. These courses perhaps contain all the essential and may require some basic subjects from all the Statistics. So, there is a chance of these students using internet for the various purpose including the entertainment along with the studies.

Internet has been widely accessed as an innovative style of gaining information. The amount of information available therein exceeds that of any physical library. Despite many of the college and university students using the internet, academic purpose triumphs the highest desirable reason as far as their studies are concerned.

In statistical model, multivariate linear regression is one such commonly used in the study of prediction. It is easy to use and understand since it doesn't require complicated mathematical skills for the researchers to learn. There are also several tasks that can be used to build a prediction model which includes classification, regression and categorization and also generate rules for prediction [12]. Some of the algorithms are Decision tree, Naive Bayes, KNN [2,10&11] among others.



1.1 Problem Statement

Generally, the university-going students have an immense variety of subjects in the core area which is sometimes difficult for the students to understand. This has made students to choose internet where there is a lot of information provided concerning the area of their specialty. Internet currently, plays a major role in and around the people and makes them depend on it for each and everything. This is mainly affected by student's community where they use internet for various purpose like getting notes for studies, doing the assignment and other related activity and also for communications purposes. Therefore, predicting the student's academic performance will help the instructor to develop the virtuous understanding of student's community and take the fit procedures to make their learning comfortable.

1.2 Objective

To observe the patterns of using the internet to develop a set of multivariate linear regression models to predict the academic performance of Statistics students at UEAB based on their CGPA category.

1.3 Significance

Prediction of student's academic performance has long been observed and considered to be an important research topic in many disciplines because it benefits the educator and learners. Educators can use the predicted results to identify the number of students who will do well, averagely or poorly in a particular class to take measures accordingly.

2. LITERATURE REVIEW

Regression is a statistical method to identify the relationship between the variables present in the data. It mainly focuses on the relationship between the dependent variable and independent variables which is otherwise called as predictors. It helps to understand the changes occur in the value of dependent variable when anyone of the independent variables is changed. By using the value of the independent variable, an equation is formulated which contains the independent variables along with some coefficients and the slope value. There are lot many types of regression techniques. One such is linear regression technique which is mainly used for prediction. The linear regression is used to examine the relationship between one dependent variable and one or more independent variables.

[11] proposed a study based on the prediction of student's academic performance using data mining techniques. The study identifies the relationship between the student's academic performance and their final scores. The model was built using the SVM technique and it was compared with other classification algorithms. The final result has shown that the accuracy obtained through SVM classification is much greater than the other algorithms.

A research project done by [2] from Bulgarian University mainly focused on the usage of data mining techniques for university management. The results achieved by selected data mining algorithms for classification doesn't reveal any worthy outcomes.

[13] explored the student's demographic attributes along with their corresponding study environment which is used for the analysis of these factors affecting their success rates in their course of the study. The results show that the important factors to distinguish between successful and unsuccessful students and for predicting the category of students, the CART algorithm is used which produce an overall percentage of 60.5%. It does not contain adequate information for distinguishing between successful and unsuccessful students.

Some authors explored the difference between data mining techniques [1,4,10] and explored the comparison of the methods for educational learners and provided a better predictive model among all the data mining techniques. Some researchers focused on the use of classification algorithms and provided the comparison of all the classifiers in their paper [5].

In all these works, the authors concentrated on the students' performance prediction using different data mining techniques to carry out the analysis but the work mainly focuses on building and validating the regression technique of undergraduate students of statistics stream who use the internet for various purposes.

The simple linear regression with one dependent variable and one independent variable is given in equation (2.1) as:

$$y = \beta_0 + \beta_1 x + \xi \quad (2.1)$$



where y is the predicted dependent variable value, β_0 is a constant, β_1 represent the coefficient of the regression, and x is the independent variable and ξ is the error term. For our study, the multiple linear regression was used amidst several types of linear regression techniques like: Simple linear regression, Multiple linear regression, Logistic regression, Ordinal regression, Multinomial regression and Discriminant analysis. Multiple linear regression is used for one dependent variable and more than two independent variables containing dataset.

The multiple linear regression model is written as a straightforward extension of the simple linear model given in equation (2.1). The model is specified in equation (2.2) below:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_m x_m + \xi \quad (2.2)$$

where y is the dependent variable; $x_j, j = 1, 2, 3, \dots, m$, represent m different independent variables; β_0 is the intercept (value when all the independent variables are 0); $\beta_j, j = 1, 2, 3, \dots, m$, represent the corresponding m regression coefficients and ξ is the random error, usually assumed to be normally distributed with mean zero and variance σ^2 .

To estimate the regression coefficients, we use a set of n observed values on the $(m+1)$ -tuple $(x_1, x_2, \dots, x_m, y)$ and use the least squares principle to obtain the following equation (2.3) for estimating the mean of y .

$$\hat{\mu}_{y|x} = \hat{\beta}_0 + \hat{\beta}_1 x_1 + \hat{\beta}_2 x_2 + \dots + \hat{\beta}_m x_m \quad (2.3)$$

The least squares principle specifies that the estimates, $\hat{\beta}_i$'s, minimizes the error sum of squares

$$SSE = \sum (y - \hat{\beta}_0 - \hat{\beta}_1 x_1 - \hat{\beta}_2 x_2 - \dots - \hat{\beta}_m x_m)^2 \quad (2.4)$$

For convenience we redefine the model

$$y = \beta_0 x_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_m x_m + \xi \quad (2.5)$$

where x_0 is a variable that has the value 1 for all observations. Obviously, the model is not changed by this definition, but the redefinition makes β_0 look like any other coefficient, which simplifies the computations in the estimation procedure. The *ESS* to be minimized is now written as:

$$SSE = \sum (y - \hat{\beta}_0 x_0 - \hat{\beta}_1 x_1 - \hat{\beta}_2 x_2 - \dots - \hat{\beta}_m x_m)^2 \quad (2.6)$$

The solutions to these **normal equations** provide the least squares estimates of the coefficients, which we have already denoted by $\hat{\beta}_0, \dots, \hat{\beta}_m$.



$$\begin{array}{cccccccccccc}
\beta_0 n & + & \beta_1 \Sigma x_1 & + & \beta_2 \Sigma x_2 & + & \dots & + & \beta_m \Sigma x_m & = & \Sigma y \\
\beta_0 \Sigma x_1 & + & \beta_1 \Sigma x_1^2 & + & \beta_2 \Sigma x_1 x_2 & + & \dots & + & \beta_m \Sigma x_1 x_m & = & \Sigma x_1 y \\
\beta_0 \Sigma x_2 & + & \beta_1 \Sigma x_2 x_1 & + & \beta_2 \Sigma x_2^2 & + & \dots & + & \beta_m \Sigma x_2 x_m & = & \Sigma x_2 y \\
\cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
\beta_0 \Sigma x_m & + & \beta_1 \Sigma x_m x_1 & + & \beta_2 \Sigma x_m x_2 & + & \dots & + & \beta_m \Sigma x_m^2 & = & \Sigma x_m y
\end{array} \tag{2.7}$$

Because of the large number of equations and variables, it is not possible to obtain simple formulas that directly compute the estimates of the coefficients as for the simple linear regression model. In other words, the system of equations must be specifically solved for each application of this method. Although procedures are available for performing this task with handheld or desk calculators, the solution is almost always obtained by computers. We will, however, need to represent symbolically the solutions to the set of equations. This is done with matrices and matrix notation.

To show the solution procedure using matrix notation for the general case and numerically, define the matrices \mathbf{X} , \mathbf{Y} , \mathbf{E} and \mathbf{B} as follows:

$$\mathbf{X} = \begin{bmatrix} 1 & x_{11} & x_{12} & \dots & x_{1m} \\ 1 & x_{21} & x_{22} & \dots & x_{2m} \\ \cdot & \cdot & \cdot & \dots & \cdot \\ \cdot & \cdot & \cdot & \dots & \cdot \\ 1 & x_{n1} & x_{n2} & \dots & x_{nm} \end{bmatrix}, \mathbf{Y} = \begin{bmatrix} y_1 \\ y_2 \\ \cdot \\ \cdot \\ y_n \end{bmatrix}, \mathbf{E} = \begin{bmatrix} \xi_1 \\ \xi_2 \\ \cdot \\ \cdot \\ \xi_n \end{bmatrix}, \text{ and } \mathbf{B} = \begin{bmatrix} \beta_0 \\ \beta_1 \\ \cdot \\ \cdot \\ \beta_m \end{bmatrix} \tag{2.8}$$

Where x_{ij} represents the i^{th} observation, $i = 1, 2, \dots, n$, of the j^{th} independent variable, $j = 1, 2, \dots, m$. Using these matrices, the model equation for all observations,

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_m x_m + \xi \tag{2.9}$$

can be expressed as

$$\mathbf{Y} = \mathbf{X}\mathbf{B} + \mathbf{E} \tag{2.10}$$

The first column of the matrix \mathbf{X} is a column of ones, used as the “variable” corresponding to the intercept. Using matrix notation, we can express the normal equations as:

$$(\mathbf{X}\mathbf{X})\hat{\mathbf{B}} = \mathbf{X}\mathbf{Y}, \tag{2.11}$$

where $\hat{\mathbf{B}}$ is a vector of least squares estimates of \mathbf{B} .

The solution to the matrix equation is written as:

$$\hat{\mathbf{B}} = (\mathbf{X}\mathbf{X})^{-1} \mathbf{X}\mathbf{Y}. \tag{2.12}$$

These expressions are valid for a multiple regression with any number of independent variables. That is, for a regression with m independent variables, the \mathbf{X} matrix has n rows and $(m + 1)$ columns. Consequently, the matrices \mathbf{B} and $\mathbf{X}\mathbf{Y}$ are of order $\{(m+1) \times 1\}$, and $\mathbf{X}\mathbf{X}$ and $(\mathbf{X}\mathbf{X})^{-1}$ are of order $\{(m+1) \times (m+1)\}$.

The procedure for obtaining the estimates of the parameters of a multiple regression model is a straightforward application of matrix algebra for the solution of a set of linear equations. To apply the procedure, first compute the $X'X$ matrix as follows:

$$X'X = \begin{bmatrix} n & \Sigma x_1 & \Sigma x_2 & \cdots & \Sigma x_m \\ \Sigma x_1 & \Sigma x_1^2 & \Sigma x_1 x_2 & \cdots & \Sigma x_1 x_m \\ \Sigma x_2 & \Sigma x_2 x_1 & \Sigma x_2^2 & \cdots & \Sigma x_2 x_m \\ \cdot & \cdot & \cdot & \cdots & \cdot \\ \Sigma x_m & \Sigma x_m x_1 & \Sigma x_m x_2 & \cdots & \Sigma x_m^2 \end{bmatrix} \quad (2.13)$$

that is, the matrix of sums of squares and cross products of all the independent variables.

2.1 Conceptual Framework

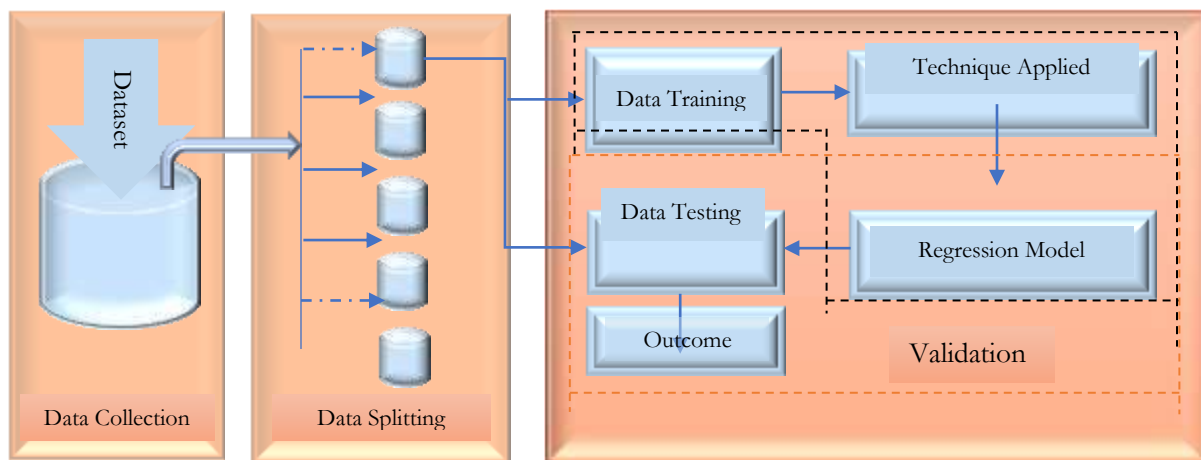


Figure 2.1: Predictive Model Framework

3. RESEARCH DESIGN

The questionnaire method coupled with extraction of information from the respective student's record in the department of Mathematics at the UEAB was the research instrument used. The test-re-test reliability of the questionnaire was tested for content validity before administering it to students. Data was then selected and split as training and testing datasets. After splitting the dataset, the multivariate linear regression technique was applied on the training dataset and this regression equation was used for prediction purposes by passing the test dataset. Based on the categories of training dataset, the models would be predicted as summarized in figure (2.1).

3.1 The Data and Variables used

The data used were derived from the departmental examination record office and the questionnaire administered to students using appropriate numerical codes. Understanding the collected data and performance of the analysis was done using the Minitab version 18 software. The dependent variable y is the CGPA. Independent variables were as follows: academic usage purposes, x_1 ; entertainment usage purposes, x_2 ; communication usage purposes, x_3 ; time period spent on social media, x_4 and cumulative intermate usage before end of semester was x_5 .



3.2 Target Population

The target population consists of 200 series level students of Mathematics and Statistics and a total of 120 students taking statistics courses were included and their corresponding semesters. The main study sample size was derived using the sample table guide for sample size decisions provided by [7]. The response rate is 100% because concerted efforts were made to retrieve the questionnaire from students. Demographically, 40.7% and 59.3% were the respondents per the study year. 16% had a CGPA between 3.33 and 4.00, 37.3% between 2.67 and 3.32 and 46.7% between 2.25 and 2.66. out of these 110 respondents, 33.3% were males while females were 66.7%.

4. ANALYSIS OF RESULTS

The multivariate linear regression technique was employed to develop three predictive models based on the training dataset collected. The statistical formula of each predictive model from the table is expressed as follows:

Model 1 (M ₁)		Model 2 (M ₂)		Model 3 (M ₃)	
CGPA	B	CGPA	B	CGPA	B
Constant	0.131	Constant	0.421	Constant	0.199
X ₁	0.756	X ₁	0.607	X ₁	0.712
X ₂	-0.100	X ₂	-0.120	X ₂	-0.103
X ₃	-0.128	X ₃	-0.141	X ₃	0.009
X ₄	0.011	X ₄	0.122	X ₄	0.210
X ₅	0.152	X ₅	0.201	X ₅	0.103

Table 4.1: Model's Summary

Model # 1:

$$y'_1 = 0.131 + .756x_1 - .100x_2 - .128x_3 - .011x_4 - .152x_5 \quad (4.1)$$

Model # 2:

$$y'_2 = 0.420 + .607x_1 - .120x_2 - .141x_3 + .122x_4 + .201x_5 \quad (4.2)$$

Model # 3:

$$y'_3 = 0.199 + .712x_1 - .103x_2 + .009x_3 + .210x_4 + .103x_5 \quad (4.3)$$

There is a variance with the presence of independent variables for each and every category of the students. To validate the model and check its accuracy, the dependent variable can be calculated, from the projected models, by passing the test data values (i.e. for sample data sets):

$$M_1 : x_1 = 4; x_2 = 4; x_3 = 5; x_4 = 3; x_5 = 3; \quad M_2 : x_1 = 7; x_2 = 4; x_3 = 3; x_4 = 2; x_5 = 1$$

and $M_3 : x_1 = 4; x_2 = 2; x_3 = 1; x_4 = 3; x_5 = 2$, substituting these values into the prediction equation (4.1) above, we get:

$$y'_1 = 0.131 + .756(4) - .100(4) - .128(5) - .011(3) - .152(3) = 2.604 \quad (4.4)$$

A deviation of 0.19 from the original observation of $y_1 = 2.794$. Similarly, following the same procedure as equation (4.4), a deviation of 0.21 from the original $y_2 = 3.03$ from equation (4.2) and lastly the original observed $y_3 = 3.701$ with a predicted value of $y_3' = 3.791$ from equation (4.3).

4.1 Model Evaluation

Each of the predictive model was evaluated by the RMSE. It gives the standard deviation of the model prediction error where a smaller value indicates a better model performance. The model's residuals are considered and the RMSE calculated for the three models were as shown in figure (4.1). From the figure, the values are slightly deviated from the original regression line. Therefore, any choice of the model can be used to test the data and predict the values.

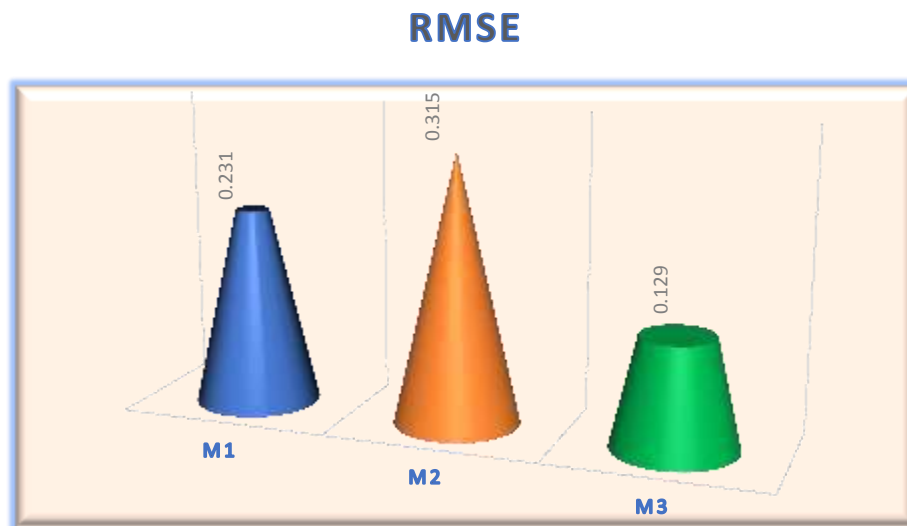


Figure 4.1: RMSE Evaluation

5. CONCLUSION AND RECOMMENDATIONS

Predicting student's performance would give teachers a better approach for teaching and advising the students and therefore boosting the results of they who are at risk of failure. Multivariate linear regression technique was used in building the model. From the model predicted, it shows how the value of the dependent variable differs based on the value of the independent variables. The educators can analyze the performance of the class and can also improvise the teaching techniques used based on the result of each category of the students. The results revealed that the predicted model scores gives a better accuracy with M_1 through M_3 in the range of $\pm 5\%$ from the original scores.

These predictive models developed in this research were based on the data collected at our private university. The developed models can be employed as a general tool to predict student academic performance in other courses especially the mathematics related ones, so they can benefit both teaching and learning. When extending the regression technique to another institution of higher learning, it is suggested to collect the data on student academic performance at that particular institution to develop a corresponding regression model. This will ensure that the regression model best represents teaching and learning at that particular institution.



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INCREASING SOIL FERTILITY

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ABSTRACT

This article presents information about the importance of using composts prepared in different proportions nowadays to increase and maintain soil fertility. It is written about as a result of the usage and preparation of composts by mixing various organic wastes with phosphogypsum to improve and maintain soil fertility, a certain increase in humus in the soil, a decrease in soil capacity mass and an increase in porosity, the accumulation of nutrients in the soil provide an additional yield of 5-6 c / ha per hectare of cotton.

KEYWORDS: *soil, fertility, humus, soil properties, bulk density, porosity, compost, organic fertilizers, various wastes, cotton yield, yield.*

INTRODUCTION

In agriculture, it is important to cultivate irrigated lands efficiently and effectively, the main task is to improve and increase soil fertility, to grow abundant and high-quality crops. This has always been one of the most pressing issues.

Currently, as a result of improper use of mineral fertilizers in the soil, there is a sharp change of organic substances in the composition of soil, the amount of humus decreases from year to year, the biological balance of the soil is disturbed and soil fertility decreases. This is causing serious problems in the development of agriculture today.

The experience of world agriculture shows that crop yields are inextricably linked with the amount of fertilizers applied to the soil. The

effectiveness of fertilizers is usually noted by the amount of additional yield obtained from the crop.

Quziev R.Q. [3] noted that an increase in humus content in soils plays an important role in increasing not only soil properties but also crop yields. The organic substances removed by the crop causes a decrease in the amount of humus, nitrogen and other nutrients in the soil. Depletion of humus negatively affects the physical condition of the soil. Their density increases, air and water order deteriorates. The nature of the soil humus also changes and its protective function decreases.

Azimbaev S. and others [1] report that the usage of composts prepared from various wastes in irrigated meadow soils in pure form or in combination with mineral fertilizers allows the



accumulation of large amounts of organic substances in the soil. In the experiment, the reduction of harmful cations in the soil was also achieved due to the use of composts. This shows that the natural minerals and composts used have a positive effect on soil properties.

According to researchers, the use of composts increases the activity of microorganisms as a result of an increase in the amount of humus in the soil, and also increases soil fertility. These allow to grow ecologically clean products in agriculture, increase productivity and increase income [2; 4; 5].

Humus has a special role in soil fertility. To get a great and high-quality yield from agricultural crops, soil fertility must be high.

In this regard, application of local fertilizers, composts of various compositions and their effective use in the restoration and improvement of fertility of low-yielding soils is one of the most pressing issues today.

Currently, the preparation and usage of composts by mixing various organic wastes to improve soil fertility in the absence of local manures ensures high and ecologically qualitative yields of agricultural crops.

Preparation of composts from various wastes and their usage improves soil fertility and water-physical properties, as well as increases the yield of cotton.

METHODS OF CONDUCTING THE EXPERIMENT

Based on the information above, experiments were conducted at the research and training farm of Tashkent State Agrarian University to improve soil properties and increase cotton yields by preparing composts in different proportions from different wastes and applying them at 10 and 20 tons per hectare. The composition of the composts used in the experiment consisted of different wastes, were prepared in 3 different proportions and were applied at 10 and 20 tons per hectare. They are compost-1 (rice husks and sawdust -25%, cattle manure-25%, poultry manure-45%, phosphogypsum-5%); compost-2 (rice husks and sawdust -25%, cattle manure-25%, poultry manure-35%, phosphogypsum-15%); compost-3 (rice husks and sawdust -25%, cattle manure-25%, poultry manure-25%, phosphogypsum-25%).

The research was conducted on the basis of "Methods of conducting field experiments" (2007).

RESEARCH RESULTS AND DISCUSSION

One of the main indicators determining its fertility in the soil is its agrophysical properties.

Basically, it is the mechanical composition of the soil, granularity, capacity mass, porosity, water permeability and so on. The physical properties of the soil and the physical processes that take place in it have a major impact on soil formation, fertility, and plant growth and development.

It has been proved by a number of scientists that microbiological processes are also active when the soil ploughing layer is well supplied with moisture, air and nutrients. However, due to various influences, the capacity mass of the soil changes in a peculiar way.

The experiments revealed the effect of different composting norms on changes in soil capacity mass. In the experiment, control (NRK) variant, at the beginning of the action (vegetation) period, the capacity mass in layers of soil 0-30 and 30-50 cm was 1.33-1.40 g/cm³, by the end of the cotton growing (vegetation) period, the capacity mass in the 0-30 and 30-50 cm layers of soil increased compared to the initial values (1.38 and 1.44 g/cm³).

In the variants of 10 and 20 t/ha compost-1 on the background of mineral fertilizers at the beginning of the action period the capacity mass of the soil in layers 0-30 and 30-50 cm was 1.29-1.27 and 1.36-1.35 g/cm³, respectively, it was 0.04-0.06 and 0.04-0.05 g/cm³ less than the control variant. By the end of the action period, however, these differences were greater than in Option 1.

At the beginning of the action period in the variants using compost-2 at 10 and 20 t/ha per hectare, the capacity mass of the soil in layers 0-30 and 30-50 cm is 1.28-1.27 and 1.36-1.34 g/cm³, respectively, compared to the control variant decreased by 0.05-0.06 and 0.04-0.06 g/cm³ and the compost norms decreased by 0.1-0.1 and 0.2-0.1 g/cm³ compared to the manure norms. At the end of the action period, the capacity masses in the above soil layers were 1.33-1.31 and 1.41-1.39 g/cm³, respectively, and decreased by 0.05-0.07 and 0.03-0.05 g/cm³ compared to option 1 and by 0.01-0.01 and 0.01-0.01 g/cm³ compost norms compared to manure norms. It was found out that at the beginning of the action period in the compost-3 10 and 20 t/ha variants, the soil capacity mass in layers 0-30 and 30-50 cm was 1.29-1.28 and 1.37-1.36 g/cm³, and compared to the control decreased by 0.04-0.05 and 0.03-0.04 g/cm³. By the end of the action period, these differences were greater than in Option 1.

The study also found the effect of different compost norms on changes in the porosity of low-yielding soils. At the beginning of the action period in the control variant, the porosity in the 0-30 and 30-50 cm layers of soil was 51.1 and 48.5%, respectively, while at the end of the action period it was 49.3 and 47.1% in the 0-30 and 30-50 cm layers of soil.



In the variants of 10 and 20 t/ha of manure on the background of mineral fertilizers, the porosity of the soil under the influence of applied manure at the end of the action period in layers 0-30 and 30-50 cm was 49.3-50.7 and 47.1-47.8%, respectively. These figures were found to be higher by 1.4–2.2 and 0.7–1.4% than the control variant.

Composts were found to have a positive effect on soil porosity when applied at a rate of 20 t/ha. In the 7th variant with 20 tons of compost-2 per hectare, the porosity of the soil at the beginning of the action period was 53.3 and 50.7%, respectively, which is 2.2 and 2.2% higher than in the control variant (1), 0.4 and 0.3% higher than in option (3), where 20 t/ha manure was applied. This indicates that the water-physical condition of the soil improves when composts are used compared to usage of only manure.

At the same time, in the experiment the effect of various prepared compost standards on soil fertility - the total amount of humus, nitrogen and phosphorus in it, was found.

In the experiment, it was found that at the end of the cotton action period in the control (NRK) variant, the humus content in the 0-30 and 30-50 cm layers of soil was 0.905 and 0.746%, respectively. It was also found that the total nitrogen and phosphorus content in this variant was 0.074–0.062 and 0.142–0.115%, respectively, for the soil layers.

In the variants applied with 10 and 20 t/ha of manure on the background of mineral fertilizers (NRK), the amount of humus in the soil layers 0-30 and 30-50 cm at the end of the cotton action period was 0.950 - 1.015 and 0.757 - 0.766%, increased by 0.038 - 0.103% at 0–30 cm compared to the initial state. As a result of the increase in the applied manure norms, a relative increase in the amount of humus in the ploughing (0-30) layer of soil was observed.

It was also found that the total nitrogen content in this 20 t/ha manure used variant also increased by 0.008-0.011%, as the total nitrogen depends on the humus content of the soil. The total amount of phosphorus in the ploughing layer of the soil increased by 0.015-0.020%, while in the lower layer of ploughing these parameters did not change.

Compost - 1 in the variants applied to 10 and 20 t/ha, the amount of humus in the 0-30 and 30-50 cm layers of soil was 0.960-0.762, respectively; 1,018-0,770%, total nitrogen - 0,080-0,064; 0.083-0.065% and phosphorus - 0.148-0.118; 0.154-0.118%, while compost - 2 in the (6-7) variants applied to 10 and 20 t/ha was 0.970-0.760, respectively; 1,020-0,772%, total nitrogen - 0,079-0,063; 0.084-0.065% and phosphorus - 0.149-0.117; 0.156-0.118% and the amount of humus in the

compost - 3 10 and 20 t/ha in proportion to the soil layers was 0.945-0.759; 1,013-0,765%, nitrogen - 0,077-0,062; 0.080-0.064% and phosphorus - 0.149-0.117; 0.157-0.117%.

It should be noted that the optimal effect of different compost standards on changes in the amount of humus, total nitrogen and phosphorus in the soil was observed in the variant using compost-2 at 20 t/ha. In this variant, it was found that the amount of humus in the 0-30 cm layer increased by 0.115%, total nitrogen by 0.010% and phosphorus by 0.014% compared to the control.

CONCLUSIONS

In summary, using composts of various wastes at a rate of 20 tons per hectare resulted in a decrease in soil capacity mass and an increase in porosity. Moreover, an increase in the amount of humus, total nitrogen and phosphorus in the soil was also achieved. In general, compost has proven to be one of the main sources as an organic fertilizer in increasing and maintaining soil fertility.

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THE EFFECT OF PROFITABILITY AND LEVERAGE ON TAX AVOIDANCE WITH COMPANY SIZE AS A MODERATING VARIABLE

(Empirical Study on Property, Real Estate, and Building Construction Companies listed on the Indonesia Stock Exchange 2013-2018)

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ABSTRACT

The objectives of this study are as follows: 1) To examine the effect of Profitability on Tax Avoidance; 2) To examine the effect of Leverage on Tax Avoidance; 3) To assess the extent to which Company Size can moderate the relationship between Profitability and Tax Avoidance; and 4) To assess the extent to which Company Size can moderate the relationship between Leverage and Tax Avoidance. This type of research used in this research is casual associative research (causal associative research). The population in this study were property, real estate and building construction companies listed on the Indonesia Stock Exchange (BEI) during the period 2013-2018. The sample selection was using purposive sampling method. The analysis method used to test the hypothesis is Moderated Regression Analysis (MRA). The results showed that: 1) Profitability has no effect on tax avoidance in a negative direction; 2) Leverage affects tax avoidance in a positive direction; 3) Company size is unable to moderate the relationship between profitability and tax avoidance; and 4) Firm size is unable to moderate the relationship between leverage and tax avoidance.

KEYWORDS: Profitability, Leverage, Company Size, 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 weaknesses in taxation 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 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, 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 conducts 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 paying taxes by transfer pricing (Murwaningtyas, 2019).



There are several factors that are indicated to affect the Tax Avoidance action including profitability and leverage. This variable has indeed been taken a lot in several studies by previous researchers, but it still shows variations in research results or inconsistencies. Profitability is a measurement of a company's performance. Profitability of a company shows the ability of a company to generate profits for a certain period at a certain level of sales, assets and 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 that must be paid by the company. The large amount of tax that must be paid will make the company do tax avoidance engineering.

In research conducted by Dewinta & Setiawan (2016), Oktamawati (2017), Cahyanti, et al (2017) and Nengsih, et al (2018) which states that profitability affects 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. The interest expense borne by the company can be used as a deduction from the company's taxable income to reduce its 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. The 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.

The inconsistencies of the results of previous studies encourage the author to add company size as a moderating variable in the relationship between profitability and tax avoidance, which later this

moderating variable can strengthen or weaken the relationship between profitability and leverage with tax avoidance. Large companies tend to be able to produce stable profits, the ability to obtain a more stable profit tends to be owned by large companies compared to smaller companies. Large companies also tend to have good resources in managing their taxes. Large and stable profits coupled with owned resources will tend to companies avoid tax.

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 company 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) who stated that company size influences tax avoidance. This statement is different from the results of research owned by Cahyono, et al (2016) and research by Nengsih, et al (2018) which states that company size has no 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.

Based on the background description above, the authors are interested in conducting a study entitled: "The Effect of Profitability and Leverage Against Tax Avoidance with Company Size as a Moderating Variable (Empirical Study on Property, Real Estate, and Building Construction Companies listed on the Indonesia Stock Exchange 2013-2018)".

Based on this background, this study aims 1) To examine the effect of profitability on tax avoidance; 2) To assess the effect of Leverage on Tax Avoidance; 3) To assess the extent to which Company Size can moderate the relationship between Profitability and Tax Avoidance; and 4) To assess the extent to which Company Size can moderate the relationship between Leverage and Tax Avoidance.

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.

Legitimacy Theory

According to Ahmad et al (2004) in Hasian (2017), the theory of legitimacy is based on the notion of a social contract that is implied between social institutions and society. Shocker and Sethi (1973 in Indra and Istianingsih, 2018) provide an explanation of the concept of social contracts as follows: All social institutions are no exception companies operate in society through explicit or implicit social contracts where their survival and growth are based on:

- 1) The final output (output) that can be given socially to the wider community.
- 2) Distribution of economic, social or political benefits to groups according to their power.

The legitimacy theory also explains that the practice of corporate responsibility disclosure must be carried out in such a way that the company's activities and performance are acceptable to the public. Ghazali

and Chariri (2007) in Hasian (2017) explained that in order to legitimize company activities in the eyes of the public, companies tend to use environmental-based performance and disclosure of environmental information.

Legitimacy theory is the theory most often used especially when it relates to social areas and environmental accounting. Although there is still a strong pessimism expressed by many researchers, this theory has been able to offer a real perspective on the voluntary recognition of a company by the public.

Profitability

Profitability is the main purpose of the establishment of the company. Profitability plays an important role for the company's future. Companies need to have good profitability for business continuity (Dari and Harnovinsah, 2017). Profitability is one indicator to assess the level of effectiveness of management performance in running a company by looking at the level of benefits obtained (Indrachya, et al, 2017). Profitability is measured by Return on Equity (ROE). ROE is a ratio that measures the level of net income obtained by the owner of the company for the invested capital or in other words measures the extent of the efficiency of the used capital itself. This ratio is also influenced by the size of the company's debt, if the proportion of debt is greater then this ratio will also be even greater. The formula is as follows:

$$ROE = \frac{\text{Earning after Tax}}{\text{Shareholder's Equity}}$$

Leverage

According to Fahmi (2014), leverage ratio is a measure of how much a company is financed with debt. The use of debt that is too high will endanger the company because the company will go into extreme leverage (extreme debt) that is the company is trapped in a high level of debt and it is difficult to release the debt burden. Therefore, the company must balance how much debt is worth taking and from which sources can be used to pay off debt. Leverage is measured by debt ratio (DR). This ratio measures how much the company's assets are financed by creditors. The higher the debt ratio (DR) the greater the amount of loan capital used in generating profits for the company. The formula is as follows:

$$\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

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 they will be more careful in doing financial reporting, so that the impact of these companies is reporting conditions more accurately.



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.

Tax Avoidance

Tax avoidance is part of tax planning (tax planning) that is done legally by shrinking the tax object that is the basis for taxation that is still in accordance with the provisions of applicable tax laws. Legal strategies or methods in accordance with the provisions of the Act (Act), usually carried out by utilizing things that are ambiguous in the Act so that in this case the Taxpayer utilizes the gap caused by the ambiguity in the tax law. The tax saving strategy is also referred to as an aggressive tax strategy. Although tax avoidance has the potential to harm state revenue from the taxation sector, tax avoidance is a logical consequence that arises from every taxation policy issued by the Directorate General of Taxes. So that many companies try to find loopholes in the policy that are profitable for tax savings.

In this study, tax avoidance was measured using CETR (Cash Effective Tax Rate). CETR according to Dyreng, et. al (2010) is well used to describe corporate tax avoidance activities because CETR is not affected by changes in estimates such as valuation allowance or tax protection. In addition, measurements using CETR can answer the problems and limitations of tax avoidance measurement based on the GAAP ETR model. The smaller the CETR value, the greater the tax avoidance, and vice versa.

Previous Research Review

Previous research that can support this research is Dewinta & Setiawan (2016) in his research entitled "Effect of Company Size, Company Age, Profitability, Leverage, and Sales Growth on 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

Ginting (2016) in his research entitled "The Effect of Corporate Governance and Fiscal Loss Compensation on Tax Avoidance with Company Size as a Moderating Variable". The results showed that Institutional Ownership, and Fiscal Loss Compensation have a significant effect on Tax Avoidance, while Independent Commissioners have no significant effect on Tax Avoidance. Company size is not able to moderate (strengthen or weaken) the influence of Institutional Ownership, Independent Commissioners and Fiscal Loss Compensation for Tax Avoidance.

Permata, et al (2018) in his study 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.

Murwaningtyas (2019) in his study entitled "Factors Influencing 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 Framework

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

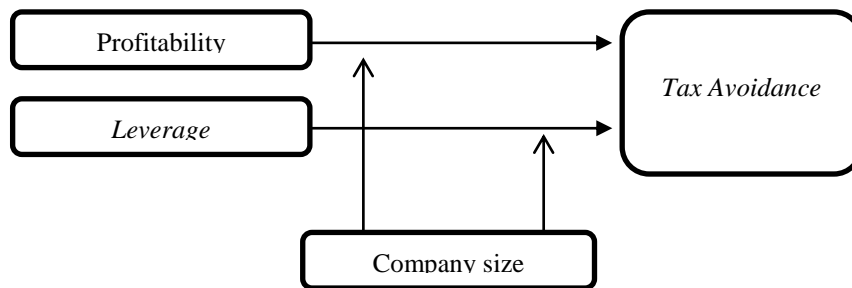


Figure 1.1 Research Model

Research Hypothesis

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

- Ha1 = Profitability affects the Tax Avoidance
- Ha2 = Leverage affects Tax Avoidance
- Ha3 = Company size can moderate the relationship between profitability and tax avoidance

Ha4 = Company size can moderate the relationship between leverage and tax avoidance



RESEARCH METHODOLOGY

Types of research

This type of research used in this study is a casual associative research (causal associative research). According to Sanusi (2011), associative-causal research is a research that seeks a relationship 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 and the independent variable. Operational research variables can be summarized in table 1.1.

Table 1.1 Operationalization of Variables

Type Variable	Proxy	Rumus	Skala
Dependent			
<i>Tax Avoidance</i>	CETR (Cash Effective Tax Rate) of the company, that is cash spent on tax costs divided by profit before tax. Dyreng, et al (2010)	CETR	Rasio
Independent			
Profitability	Return on Equity (ROE) is a ratio that measures the level of net income obtained by the owner of the company for the invested capital or in other words measures the extent of the level of efficiency of own capital used. (Ludijanto, 2011)	$\frac{\text{Earning after Tax}}{\text{Shareholder's Equity}}$	Rasio
Leverage	<i>Debt Ratio</i> (DR) merupakan rasio yang mengukur berapa besar aktiva perusahaan yang dibiayai oleh kreditur. (Ludijanto, 2011)	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	Rasio
Moderating			
Company Size	Large-scale small companies, an established large company will have easy access to the capital market (Purnamasari & Fitria, 2015)	Logaritma Natural Total Aset	Rasio

Data Types and Sources

The data used in conducting this research is secondary data, namely data obtained through intermediaries from second parties or certain media that support this research. The data used in this study is secondary data in the form of financial statements of property, real estate and building construction companies listed on the IDX during 2013-2018 which are obtained from the Indonesia Stock Exchange website (www.idx.co.id).

Population and Research Samples

The population in this study were property, real estate and building construction companies listed on the Indonesia Stock Exchange (IDX) during the period 2013-2018. The sample is a part of the population that is used to estimate the characteristics of the population. The sampling technique is using purposive sampling technique. According to Widyani (2010), the purposive sampling method is the selection of samples based on the suitability of the sample characteristics with the predetermined sample

selection criteria. The sample criteria used in this study are:

1. Property, Real Estate and Building Construction Companies listed on the Indonesia Stock Exchange (IDX) in the period 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 research are literature study and documentation methods. Literature study method by studying literature and



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

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

Classic assumption test

This research was conducted with a simple regression analysis. The use of simple regression analysis must be free from testing classic assumptions. For this reason, before a simple regression analysis is required, classical assumptions must be tested first. Testing classic assumptions is done using normality test, multicollinearity test, heterokedasticity test and autocorrelation test.

Hypothesis testing

In this study the authors used three independent variables, one dependent variable and one moderating variable. The analytical method used to test hypotheses is the interaction test or often referred to as Moderated Regression Analysis (MRA), which is a special application of linear multiple regression where the regression equation contains interaction elements (multiplication of two or more independent

variables) (Ghozali, 2011). The regression equation is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \epsilon$$

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 Z + \epsilon$$

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 Z + \beta_4 X_1 * Z + \beta_5 X_2 * Z + \epsilon$$

Dimana :

$$Y = \text{Tax Avoidance}$$

$$\alpha = \text{konstanta}$$

β = number or direction of the regression coefficient, which shows the number of increase or decrease in the dependent variable based on the independent variable

$$X_1 = \text{Profitability}$$

$$X_2 = \text{Leverage}$$

$$Z = \text{Company size}$$

$$\epsilon = \text{error}$$

In this study the significance level (α) 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 F value and the statistical t value used in hypothesis testing can be obtained.

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
Profitability	78	0,01	0,31	0,13
Leverage	78	0,22	0,84	0,56
Company size	78	28,84	32,45	30,58
Tax Avoidance	78	0,00	0,49	0,15

Source: Data processed (2020)

Based on table 1.2 above, it can be presented descriptive statistical results about the following research variables: The average profitability value measured by Return on Equity (ROE) of 0.13 or 13%, with a standard deviation of 0.070 or 7%, which means small data variations (less than 6% of the mean). ROE ranges from the lowest value of 0.01 (1%), namely Sentul City Tbk company in 2014 to the highest value of 0.31 (31%), namely the Pakuwon Jati Tbk company in 2014. The average ROE value of 0.13 This shows that for every IDR 1 fund invested by investors as share capital, it will generate a net profit of 13%.

The average value of leverage as measured by Debt Ratio (DR) is 0.56 or 56% with a standard deviation value of 0.155 or 15.5%, which means that the data variation is small (less than 40.5% of the mean). DR ranges from the lowest value of 0.22 (22%), namely 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 DR value is The 0.56 shows that the large assets of companies financed by creditors amounted to 56%.

The average value of company size measured by the natural logarithm of total assets is 30.58 trillion with a standard deviation value of 0.749



trillion, which means small data variations (less than 29.83 trillion of the mean). The size of the company ranges from the lowest value of 28.84 trillion, namely 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 average value of the company size of 30.58 shows that the average sample company has an asset stability of 30.58 trillion.

The average value of Tax Avoidance measured by CETR (Cash Effective Tax Rate) of 0.15 or 15% with a standard deviation of 0.145 or 14.5%, which means that the variation of the data is very small (less than 0.5% of the mean). CETR ranges from the lowest value of 0.00 or 0%, namely the company Indal Sentul City Tbk in 2016 to the highest value of

0.49 or 49%, namely the Adhi Karya (Persero) Tbk company in 2016. The average CETR value is 0, 15 shows that the company issued cash for tax payments on average by 15% of the total pre-tax profit on the sample company.

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 results of the calculation are as follows:

Table 1.3 Summary of the Normality Test

No	Taksiran	n	L _{count}	L _{Table}		Keputusan
				$\alpha = 0,05$	$\alpha = 0,01$	
1	Y atas X1	78	0,0160	0,1003	0,1167	Normal
2	Y atas X2	78	-0,1048	0,1003	0,1167	Normal
3	Y atas X3	78	0,0269	0,1003	0,1167	Normal

Source: Data processed (2020)

Multicollinearity Test

The results of the tolerance tolerance according to table 1.4 show that there are no independent variables that have a tolerance value of less than 10%; all tolerance values are more than 10%; which means there is no correlation between variables. The results of the calculation of the value of the variance

inflation factor (VIF) also show the same thing, there are no independent variables that have a VIF value of more than 10; the value of the variance inflation factor (VIF) are all less than 10. The conclusion is that there is no multicollinearity between the independent variables in the regression model based on the tolerance value test.

Table 1.4 Multicollinearity Test Results

Variabel	Collinearity Statistics	
	Tolerance	VIF
Profitability	0,868	1,153
Leverage	0,819	1,220
Company size	0,815	1,228

Source: Data processed (2020)

Autocorrelation Test

Autocorrelation test is used to determine whether there is a correlation between a fault in a certain period with a mistake in the previous period. A good regression model is a regression that is free

from autocorrelation. Autocorrelation test can be done by testing the Durbin-Watson (DW). The results of the autocorrelation test can be seen in the following table:

Table 1.5 Autocorrelation test results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,658 ^a	0,433	0,410	0,112	1,815

Source: Data processed (2020)

Based on SPSS output, the Durbin Watson statistical value of 1,810 is obtained. While from the Durbin Watson table with n = 78 and k = 3, we get d tables, namely dl (outer boundary) = 1.554 and du (inner limit) = 1.713 with a significance level of 5%,

4-du = 2,287; and 4-dl = 2,447; then from the account it is concluded that the DW-test is located in the test area. Referring to Ghazali (2011), the regression model in this study is free from the autocorrelation



problem because the Durbin Watson values are between du and 4 du.

Heteroscedasticity Test

Detection of heterokedastisitas are: 1) Probability value > 0.05 means free from heterokedastisitas. 2) Probability value < 0.05 means it is exposed to heterokedasticity. The results of testing using the Spearman rank test can be seen in the following table:

Table 1.6 Heteroscedasticity Test Results

			X1	X2	X3
Spearman's rho	Abres	Correlation Coefficient	-0,261*	0,251*	-0,070
		Sig. (2-tailed)	0,071	0,090	0,544
		N	78	78	78

Source: Data processed (2020)

Spearman rank test results in the table above shows the significance value of each variable of 0.071, 0.090, and 0.544. Because the significance value of each variable is greater than 0.05, it can be concluded that the data are free from heterocedasticity.

Interaction Test

Interaction test or often called Moderated Regression Analysis (MRA) is a special application of linear multiple regression where the regression equation contains interaction elements (multiplication of two or more independent variables) (Ghozali, 2011). Analysis with this interaction test was carried out with the help of the SPSS (Statistical Package for Social Sciences) Release 25.0 for Windows program. From the data processing through the SPSS program the following results are obtained:

Table 1.7 Results of moderating variable regression analysis

Information	B	t tabel	t Count	Sig	Adj R ²	F _{Count}	Sig
Equation 1							
(Constant)	-0,161				0.343	21,060	0.000
X1	-0,014	1.665	-0,073	0,942			
X2	0,565	1.665	6,366	0,000			
Equation 2							
(Constant)	1,490				0.422	12,245	0.000
X1	7,572	1.665	1,637	0,106			
X2	-3,736	1.665	-0,839	0,404			
X3	-0,056	1.665	-2,939	0,004			
X1X3	-0,259	1.665	-1,677	0,098			
X2X3	0,148	1.665	0,997	0,322			

Source: Data processed (2020)

Based on the results of the regression tests above, an equation can be formed as follows:

$$Y = -0,161 - 0,014X_1 + 0,565X_2 + e \dots\dots\dots (1)$$

$$Y = 1,490 + 7,572X_1 - 3,736X_2 - 0,056X_3 - 0,259X_1X_3 + 0,148X_2X_3 + e \dots\dots\dots (2)$$

From table 1.7 it is known that the adjusted R square value in equation 1 is 0.343. This means that 34.3% of tax avoidance can be influenced by profitability and leverage, the remaining 65.7% (100% - 34.3%) is explained by other causes outside the model. While the adjusted R square value in equation 2 is 0.422. This means that 42.2% of tax avoidance can be influenced by profitability, leverage, company size, X₁X₃ and X₂X₃ the

remaining 57.8% (100% - 42.2%) is explained by other causes outside the model.

From the Anova test or the F test in table 1.7 above, the F Count value in equation 1 is 21,060 with a significance probability that indicates 0,000. Test probability values are much smaller than α = 0.05. This shows that together (simultaneously) tax avoidance can be influenced by profitability and leverage variables. While the value of the F Count in Equation 2 is 12.245 with a probability probability of



0.000. Test probability values are much smaller than $\alpha = 0.05$. This shows that together (simultaneously) tax avoidance can be influenced by profitability, leverage, company size, X_1X_3 and X_2X_3 variables.

Hypothesis test

Effect of profitability on tax avoidance

Based on the test results in table 1.7 above, it can be seen that the t value is greater than t_{count} , with a value of t table 1.665 and t_{count} -0.073 and the significance level is greater than 0.05. This means that profitability has an insignificant negative effect on tax avoidance because of its negative direction. Thus H_{a1} was rejected.

Effect of Leverage on tax avoidance

Based on the test results in table 1.7 above, it can be seen that the t value is smaller than t_{count} , with a t value of 1.665 and t_{count} 6.366 and the level of significance is much smaller than 0.05. This means that leverage has a positive effect on tax avoidance because of its positive direction. Thus H_{a2} received.

Company size can moderate the relationship between profitability and tax avoidance

Based on the test results in table 1.7 above, it can be seen that the t_{count} X_1X_3 (moderator) value is greater than t value, with t_{count} value -1,677 and t value 1,665 and the significance level is greater than 0.05. This means that company size cannot moderate the relationship between profitability and tax avoidance. Thus H_{a3} was rejected.

Company size can moderate the relationship between leverage and tax avoidance

Based on the test results in table 1.7 above, it can be seen that the t_{count} X_2X_3 (moderator) value is smaller than t value, with t_{count} value of 0.997 and t value 1.665 and the significance level is greater than 0.05. This means that company size cannot moderate the relationship between leverage and tax avoidance. Thus H_{a4} was rejected.

DISCUSSION

Effect of Profitability on Tax Avoidance

From the results of the study note that profitability as measured by return on equity (ROE) has no effect on tax avoidance with a negative direction. This means that the lower or higher profitability of the company does not affect the high or low tax avoidance. Profitability has no effect on tax avoidance because a company that has high ROE 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 ROE will be obliged to pay higher taxes so that company management has a tendency to take tax avoidance measures, even reducing the possibility of tax evasion.

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 Permata, et al (2018), and Murwaningtyas (2019) which states that profitability has no significant effect on tax avoidance. However, the results of this study contradict 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.

Effect of leverage on tax avoidance

The leverage variable influences tax avoidance in a positive direction. This means that the higher the leverage, the higher the tax avoidance action. Leverage has a positive effect on tax avoidance because debt that results in the emergence of interest expense can be a deduction from taxable profits, 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.



Company size can moderate the relationship between profitability and tax avoidance

The results showed that company size was not able to moderate the relationship between profitability and tax avoidance. This means that tax avoidance can be done either by large companies or small companies that have high profitability. Profitability measured by using return on assets shows the company's ability to manage its assets to generate profits. The greater the acquisition of the value of the company's ROA, the higher the profit generated by the company. So if the company's profits are high, the tax burden will also be high along with the increase in corporate profits, so it is very possible the company is trying to avoid increasing the tax burden imposed.

The results of this study do not support the findings of Putra & Jati (2018) which states that the interaction between profitability and company size will cause the level of tax avoidance by companies to decline.

Company size can moderate the relationship between leverage and tax avoidance

The results showed that company size was not able to moderate the relationship between leverage and tax avoidance. This is because companies that are classified as large companies tend not to practice tax avoidance by avoiding audits from the tax office, audits can cause the amount of tax paid to be more and have a big influence on the company's cash flow and profitability.

The results of this study support the findings of Hutapea & Herawaty (2020) which states that company size is not able to moderate the relationship between leverage and tax avoidance.

Conclusion

Based on the results of the analysis conclusions can be drawn as follows: 1) Profitability does not affect the tax avoidance with a negative direction; 2) Leverage affects the tax avoidance in a positive direction; 3) Company size is not able to moderate the relationship between profitability and tax avoidance; and 4) Company size is not able to moderate the relationship between leverage and tax avoidance.

Limitation

There are several limitations found in this study, among others: 1) Limited research using independent variables, namely the Profitability variable, Leverage; 2) Researchers limit the object of research to Property, Real Estate and Building Construction Companies listed on the Indonesia Stock Exchange.

Suggestions

By considering existing limitations, it is hoped that future research will improve the following factors: 1) For companies to be able to pay attention to any decisions that will be made and the risks that will be borne from any decisions made whether they are in accordance with the law and applicable tax regulations. Judging from the average size of the company which tends to be closer to the maximum value, which causes companies to tend to be more supervised by the government in terms of tax revenue; 2) The government is expected to increase more thorough supervision of the taxes paid by companies so as to increase state tax revenue and reduce tax avoidance practices by companies; 3) Further researchers may add research objects not only property, real estate, and building construction companies listed on the Indonesia Stock Exchange (IDX); and 4) For academics, the results of this study can be used as a rationale for developing research in the field of accounting, especially those related to tax avoidance.

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SPECIFIC FEATURES OF ATTRACTING INVESTMENTS IN SERVICE-ORIENTED ENTERPRISES IN THE REGIONS

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ABSTRACT

In this article, the ongoing process of economic reforms in the country, along with changes in the service sector and the creation of new jobs, the ongoing tradition of sustainable economic growth has provided the creation and development of objective conditions for increasing employment. Free economic zones, as an important link in the global economy, are showing their positive effect in attracting foreign investment in many countries. Free economic zones exist in different forms in different countries and are united by one feature, namely, the preferential conditions introduced in these regions. Such a favorable environment is one of the most effective ways to attract foreign investment.

KEY WORDS: *free economic zones, service sectors, foreign investment*

INTRODUCTION

Currently, in the context of globalization of the world economy, the development of the modern service sector is characterized by a high level of specialization. At present, as a result of reforms aimed at modernization, technical and technological re-equipment of modern sectors of the economy in the country, structural changes have taken place in the service sector. As a result, the share of the service sector in GDP is steadily growing. At the same time, one of the priorities in the Republic of Uzbekistan is "... modernization of the service sector through the transition to a qualitatively new level of quality services, primarily aimed at the accelerated development of services to the population" [2]. The effective solution of these tasks is the study of scientific, methodological and practical aspects of improving the social and economic efficiency of labor on the basis of the effective use of the services sector. The indicators reflecting macroeconomic stability and economic growth in the country are a practical manifestation of the success of the reform strategy, the deepening of economic reforms and the achievements in the country's development priorities. Today, in determining the current and future

measures of socio-economic development of the country requires a comprehensive consideration of the level of development of industries and sectors and their demand for personnel, the formation of economic development programs in terms of the impact of these processes and their consistent implementation. Therefore, the effective use of services, which is an important factor in the development of the economy, is an important factor in future strategic development. One of the tools to determine the effective use of personal services in the context of modernization of the economy of the Republic is to identify sources and reserves to increase labor efficiency. Therefore, in order to adequately study the socio-economic nature of the labor productivity indicator, it is necessary to comprehensively analyze the interrelated labor indicators. In our opinion, achieving high labor results based on the efficient use of all material and labor resources is the main criterion for increasing labor efficiency.

Analysis of the literature on the subject

There are a number of works created by scientists of our country, dedicated to improving the efficiency of services in the field of services. In this



field M.Q.Pardaev, I.S.Tuxliev, A.N.Khalikulov, H.A.Rahimov, F.A.Safarov, O.M.Pardaev, R.Haitboev, B.Sh.Safarov, G R.Tursunova, M.T.Alieva and others. That is why our research is focused on increasing the share of services in our economy.

RESEARCH METHODOLOGY

The methodological bases of scientific and practical research are the laws of the Republic of Uzbekistan, decrees and resolutions of the President of the Republic of Uzbekistan, resolutions of the Cabinet of Ministers of the Republic of Uzbekistan, references of the State Statistics Committee and other relevant normative legal acts. The study used systematic analysis, comparative analysis, macroeconomic analysis, grouping, experiment, decomposition, adaptive methods, innovative and integrated approaches, analysis and approbation of indicators representing the effectiveness of services in the regions based on international experience.

ANALYSIS AND RESULTS

In world practice, it is important to develop targeted strategies to increase investment attractiveness in the development of services in the regions, to conduct an active investment policy to ensure sustainable economic development and to conduct research aimed at ensuring the investment attractiveness of the investment climate. In world practice, it is important to develop targeted strategies

to increase the investment attractiveness of the regions, to pursue an active investment policy to ensure sustainable economic development, to conduct research to ensure the implementation of investment attractiveness. Acceleration of investment activities as a prerequisite for the formation of an innovative economy, sustainable and high growth rates in Uzbekistan, providing benefits and guarantees to domestic and foreign investors, government regulation to ensure the effectiveness of these processes, including the development of annual national and regional investment programs Consistent implementation measures have been implemented. In order to ensure the free flow of foreign investment into the economy of Uzbekistan and the formation of infrastructure on the basis of international requirements, institutional changes, ie legal and regulatory documents, standards and requirements, have been developed, management structures have been improved. In particular, on March 31, 2017, the State Committee for Investment of the Republic of Uzbekistan was established. The Action Strategy for the Development of the Republic of Uzbekistan for 2017-2021 identifies the improvement of the investment climate, the active attraction of foreign, first of all, foreign direct investment in the sectors and regions of the country's economy as one of the important areas. Effective implementation of these tasks requires research aimed at improving the investment climate in Uzbekistan.

Volume of services provided by regions (in billions of soums)

	2014 ў.	2015 ў.	2016 ў.	2017 ў.	2018 ў.
Republic of Uzbekistan	68 032,1	78 530,4	97 050,0	118 811,0	150 889,8
The Republic of Karakalpakstan	2 148,1	2 550,3	3 100,5	3 611,3	4 600,2
provinces:					
Andijon	4 009,1	4 684,5	5 765,9	6 627,2	8 011,5
Buxoro	3 045,6	3 751,2	4 756,1	5 421,1	6 631,6
Jizzax	1 324,5	1 727,0	2 155,3	2 530,8	3 283,2
Kashkadarya	3 391,1	4 058,9	5 137,6	5 859,7	7 064,1
Navoi	1 763,1	2 067,5	2 593,8	3 068,4	3 925,6
Namangan	2 961,2	3 320,6	4 408,1	4 999,2	6 067,7
Samarkand	5 065,9	5 832,9	7 200,5	8 343,2	10 043,5
Surxondaryo	2 471,4	3 067,8	3 845,3	4 485,5	6 079,6
Sirdaryo	915,8	1 103,1	1 355,6	1 603,8	2 031,4
Tashkent	5 529,5	6 445,7	8 112,9	9 347,4	11 292,9
Fergana	4 472,8	5 256,0	6 670,7	7 602,2	9 237,9
Khorezm	2 190,7	2 548,6	3 119,0	3 645,5	4 562,8
Tashkent	19 779,7	23 108,6	29 472,7	38 659,9	50 176,2

Data of the State Statistics Committee of the Republic of Uzbekistan

In recent years, we can see the growth of the service sector in the regions. Especially in Fergana, Tashkent, Samarkand, Andijan, Tashkent. One of the important factors and directions in deepening the

restructuring and diversification of the economy in Uzbekistan, improving the income and quality of life is to increase the investment attractiveness of the regions. The essence of free economic zones for the



country's economy is specially designated areas with clearly defined administrative boundaries and a separate legal order, created to attract domestic and foreign capital, promising technologies and management practices for the rapid socio-economic development of the region. Free economic zones are an important link in the world economy, attracting foreign investment in many countries showing its positive effect. EIHS exist in different forms in different countries, and they are mainly united by one feature, namely, the preferential conditions introduced in these regions. Such a favorable environment is one of the most effective ways to attract foreign investment. EIHS are a major factor in today's integration and globalization processes. EIHS lead to the international exchange of capital by attracting foreign investors, and integration takes the process to a higher level through the influx of multinational companies. In the context of integration of the Uzbek economy into the world economy, the implementation of export-oriented economic development policy in the country and the use of free economic zones in the production and export of export-oriented products, as well as the introduction of import-substituting high-tech production. Effective use of foreign trade policy experience of developed countries, especially the fastest growing countries in the world economy, including China, Germany, France, Japan, South Korea, Singapore, has a positive impact on the development of our national economy. gives Accordingly, in the formation of the national economy, the issue of increasing the country's foreign trade and export potential through the liberalization of foreign economic activity, taking into account the specifics of the transition to a market economy, in particular the establishment of free economic zones in the country. and the need to further improve the methods of their regulation. One of the most important issues today is the effective use of the experience of foreign countries and their methods in the organization and effective conduct of free economic zones. In particular, as stated in the third direction of the Decree of the President of the Republic of Uzbekistan Sh.M.Mirziyoev "Strategy for further development of the Republic of Uzbekistan", ie "Further development and liberalization of the economy" to ensure the stability of the national economy, develop competitive products, export products and materials. Implementation of measures such as the introduction of modern technologies for the production of goods, the development of transport and logistics infrastructure, entrepreneurship and the introduction of modern principles and mechanisms to increase investment attractiveness for foreign investors will increase the efficiency of EIHS and foreign investment. The volume of foreign investment in Uzbekistan has been growing steadily over the past

five years, mainly due to the favorable conditions and investment climate created for foreign investors. Currently, due to the fact that our country pursues an export-oriented policy, that is, in order to produce more export-oriented products, efforts are being made to attract foreign investors by creating favorable investment conditions in the EU. Of course, this measure is bearing fruit. In addition, in order to attract foreign investment, the existing EITs in the country provide favorable conditions for investors, such as benefits, preferences and many opportunities. As a result, it is entering our national economy the volume of total foreign capital corresponding to the EU is constantly growing has an outgoing character. The volume of foreign investment in EIH increased by 29.1% in 2014, 42.5% in 2015 and 60-70% in 2017-2018. Also, the following results are expected from attracting investments to our country through the implementation of these measures: "In 2017-2021, it is planned to implement sectoral programs involving 649 investment projects worth \$ 40 billion. As a result, over the next 5 years, industrial production will increase 1.5 times, its share in GDP will increase from 33.6% to 36%, and the share of the processing industry will increase from 80% to 85%. For example, the Board of Directors of SIZ "Angren" approved 23 projects worth about \$ 458 million. To date, 13 projects worth \$ 51 million (more than half of which is foreign direct investment) have been implemented in the Jizzakh SEZ. It is planned to increase their number to 11 this year and attract \$ 156 million in investment. The Decree of the President of the Republic of Uzbekistan Shavkat Mirziyoyev "On additional measures to intensify and expand the activities of free economic zones" signed on October 26, 2017 serves as another important factor in the consistent development of free economic zones and expanding foreign investment. The establishment of free economic zones will play an important role in the further development of the national economy and increase its economic performance, as well as in the diversification of the structure of the national economy. Through high-performance foreign high-performance equipment and machinery, technological lines and modules, innovative technologies, competitive products are produced in world markets through EIHS. Today, many resolutions and decrees are being signed to further develop the industry. The establishment of free economic zones in three regions of the country in recent years, Urgut, Gijduvan and Hazarasp, Kokand, is a proof of the great attention paid to this area. 71 projects worth \$ 171.5 million are being implemented in the Kokand free economic zone. These 71 projects were submitted by 63 investors. Certificates of participation have been issued to 59 investors, and negotiations are underway on the remaining 4



projects. 709 hectares of land have been allocated for the Kokand Free Economic Zone, and many promising projects are planned to be implemented in the region. As a result of new investment projects, products worth 3.1 trillion soums will be produced and products worth 139.1 million dollars will be exported. Most importantly, about 6,000 jobs will be created here. In the free economic zone 6 chemicals and oil, 14 building materials, 4 deep processing of agricultural products and food production, 12 light industry, 7 leather shoes, 3 electrical engineering, 4 pharmaceuticals, 3 At present, 4 projects worth \$ 7.2 million - high-pressure methane gas cylinders in LLC "Transparent methane industry", flour in LLC "Admiral Group". and flour products, footwear and artificial fur products have been launched at Kamtar Begoim LLC. 21 projects worth \$ 32.2 million will be implemented by the end of this year, and 40 projects worth \$ 125.1 million will be implemented in 2019-2020. planned to increase. In conclusion, from the above research and study, the largest share of foreign investment inflows falls on the share of EIHS, as in these regions are provided by the state various benefits, conveniences that are not available in other regions. Therefore, the effective operation of EIHS and the volume of foreign investment are inextricably linked. Foreign due to existing conditions and factors. It is expedient to carry out the following work to further increase the volume of investments.

- "It is necessary to further increase the investment attractiveness of EIHS;

- It is necessary to further improve the activities of banks;

- It is necessary to increase the volume of medium and long-term investment programs;

If the above proposals are implemented in practice, in our country

the volume of investments will increase, which will serve to increase the competitiveness of the national economy.

CONCLUSIONS AND SUGGESTIONS

The following conclusions and recommendations were made as a result of scientific and practical research:

1. Achieving economic growth in the service sector, mainly due to the improvement of service quality, will increase over time. In turn, the growth and calculation of the importance of performance indicators in the service sector increases its relevance.
2. At the current stage of development, the globalization process is expanding, its further intensification, as a result of globalization, the process of integration between countries has become an objective necessity, which leads to the expansion of

interstate relations of experts in the world. strengthening of various economic, social and cultural ties, reduction of transport services, creation of opportunities for free international labor migration, various international cultural, educational and other events on a global scale, removal of various administrative barriers as a result of visa facilitation in many countries. the desire and ability to travel to different countries, the dispersal of the world's population in different countries and the settlement in those places It was argued that factors such as the continuation of interstate relations in terms of their kinship are important factors that have a positive impact on the development of international tourism.

3. One of the important tasks of the analysis is to show how to make quality service decisions based on its results. Based on this, appropriate measures or "Road Maps" can be developed.

In conclusion, we can say that the establishment of free economic zones has been beneficial for both the economy and the population of the republic. First, the volume of exports and imports has increased, export-oriented goods have increased, and their place in the world community has been strengthened. Second, new technologies have been introduced into the manufacturing sector. This ensured production efficiency and rational use of resources. Third, several thousand jobs have been created. That is, it helped to prevent the unemployment problem, albeit to a lesser extent. Fourth, the domestic market is saturated with goods and the share of the service sector in the economy has increased.

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