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Issue Article

Zokir Bozorboyevich Khudayberdiyev
Samarkand State University
Senior Lecture to Department of
Theoretical and Applied Mechanics,
xudoyberdiyevz@mail.ru

Jahongir Zokirovich Rahmatov
Samarkand State University
Student

Zulfira Begmurod qizi Suyunova
Samarkand State University
Masters

Zaxriddin Ulugbekovich Mamirov
Samarkand State University
Masters

TRANSVERSE VIBRATIONS OF A TWO-LAYER PLATE

Abstract: *The paper considers the problem of vibrations of a three-layer viscoelastic plate and a three-layer conical shell. A three-layer plate and a three-layer conical shell are assumed to be three-dimensional bodies. The equations of motion are derived with respect to the principal components of the displacements of the middle surface. The resulting oscillation equations are solved. Appropriate conclusions were made on the basis of the decisions.*

Key words: *Plates, solutions, equations, oscillations, layer, algorithm.*

Language: *Russian*

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УРАВНЕНИЕ ПОПЕРЕЧНЫЕ КОЛЕБАНИЯ ТРЕХСЛОЙНОЙ ПЛАСТИНЫ И КОНИЧЕСКОЙ ОБОЛОЧКИ

Аннотация: *В работе рассматривается задача о колебаниях трехслойной вязкоупругой пластины и трехслойной конической оболочки. Трехслойная пластина и трехслойная коническая оболочка предполагаются трехмерными телами. Уравнения движения выводятся относительно главных компонент перемещений срединной поверхности. Полученные уравнения колебаний решаются. На основании решений были сделаны соответствующие выводы.*

Ключевые слова: *Пластинки, решений, уравнений, колебания, слой, алгоритм.*

Введение

Трехслойные пластины и конические оболочки находят широкое применение в различных областях техники. В таких случаях динамический расчет трехслойных пластин и конических оболочек основывается на гипотезах Кирхгофа. Количество научных работ этого типа очень велико. Большой вклад в дальнейшее развитие классической теории внесли С. Г. Лехницкий, С. А. Амбарцумян, Г. И. Петрашень и другие. Их исследования можно разделить на два направления: асимптотические теории и теории

Тимошенко и Рейсснера. В последние годы прошлого века Г. И. Петрашень разработал теорию расчета трехслойных пластин и оболочек, основанную на методе точных решений.

Используя этот метод, профессор И. Г. Филиппов и его ученики разработали уравнения колебаний двухслойных и трехслойных пластин и оболочек. В их работе были допущены некоторые недостатки в получении уравнений колебаний трехслойных пластин и оболочек: 1) рассматривались только трехслойные пластины с симметричной структурой; 2) в качестве неизвестных принимаются начальные части перемещений точек срединной поверхности слоя засыпки. Всего их шесть. Если граничные условия четко сформулированы, число неизвестных увеличивается до двенадцати. Об этом говорят сами авторы; 3) граничные условия формулируются относительно головных частей срединных перемещений. Теоретически это неверно; 4) эти факторы вынуждают авторов идти на существенные упрощения, приводящие к некоторым неточностям, вследствие чего уравнения колебаний трехслойных пластин и оболочек приближаются к уравнению колебаний однородных пластин и оболочек; 5) уравнения, полученные для трехслойных пластин и оболочек, не переходят в уравнения колебаний однослойных и двухслойных пластин и оболочек. Отсутствие одного из трехслойных слоев пластины и оболочки приводит к отсутствию второго внешнего слоя.

На сегодняшний день поперечные и крутильные колебания трехслойных пластин и оболочек изучены недостаточно.

Постановка задачи.

Рассмотрим трехслойную составную пластину и упругую коническую оболочку, шарнирно закрепленную с обоих концов. Считаем, что рассматриваемая трехслойная пластина и оболочка являются трехмерными телами. Введем декартову систему координат $Oxyz$ в трехслойную пластину и цилиндрическую систему координат $Or\theta z$ в трехслойную оболочку. Назовем трехслойные слои пластины и оболочки нулевыми первым и вторым слоями.

Рассмотрим трехслойную пластину в состоянии плоской деформации и трехслойную оболочку в осесимметричном состоянии.

Получаем зависимость между напряжениями и деформациями в точках трехслойной пластины и слоев конической оболочки в виде закона Гука.

$$\sigma_{ii}^{(m)} = \lambda_m \varepsilon_{ii}^{(m)} + 2\mu_m \varepsilon_{ii}^{(m)};\ \sigma_{ij}^{(m)} = 2\mu_m \varepsilon_{ij}^{(m)}. \quad (1)$$

Уравнения движения точек слоев трехслойной пластины и конической оболочки записываются следующим образом.

$$\sigma_{ij,j}^{(m)} = \rho_m \ddot{\vec{U}}^{(m)} \quad (2)$$

где $\vec{U}^{(m)}-$ векторы перемещения точек трехслойной пластины и слоев конической оболочки; $t-$время. Скаляр -φ_m и потенциальные функции - $\vec{\psi}_m$ вводятся вектором перемещения следующим образом.

$$\vec{U}^{(m)} = grad\varphi_m + rot\vec{\psi}_m \quad (3)$$

При этом считается, что векторные потенциалы $\vec{\psi}_m$ удовлетворяют условиям соленоидальности векторных полей

$$div\ \vec{\psi}_m = 0 \quad (4)$$

Подставляя (3) в систему (2), легко получить уравнения движения точек трехслойной пластины и слоев оболочки в виде волновых уравнений для продольного φ_m и $\vec{\psi}_m$ поперечного волновых потенциалов.

При плоской деформации векторы смещения точек трехслойной пластины и слоев оболочки имеют только две составляющие $\vec{U}^m = \vec{U}^m(U_m, W_m)$.

В случае плоской деформации, учитывая, что векторы перемещений точек слоев разлагаются только по единичным ортам $\vec{\imath}$, $\vec{k}$ уравнения движения приводятся к волновым уравнениям

$$\Delta\varphi_m = \ddot{\varphi}_m / a_m^2\ ;\ \Delta\psi_m = \ddot{\psi}_m / b_m^2, \quad (5)$$

где a_m, b_m- скорости распространения продольной и поперечной волны в слоях трехслойной пластины; $\Delta-$ двумерный дифференциальный оператор Лапласа. При этом компоненты вектора перемещений точек слоев трехслойной пластины и точек слоев трехслойной оболочки представляются функциями φ и ψ_m. Компоненты тензоров деформаций и напряжений также записываются потенциальными функциями φ и ψ_m.

При t<0 предполагается, что трехслойные пластины и оболочки покоятся. С момента t=0 на его поверхности начали действовать динамические силы. В силу линейности задачи можно представить полей перемещений, в виде наложения симметричной и антисимметричной частей

$$\vec{U}_m = \vec{U}_m^s + \vec{U}_m^a,$$

где $\vec{U}_m^s-$ симметричная (продольная), $\vec{U}_m^a$- антисимметричная (изгибная) части полей перемещений слоев пластины. При этом симметричные части должны удовлетворять граничным условиям

при $z = (-1)^{i-1} h_i^*,\ h_i^* = h_0 + h_i$

$$\sigma_{xz}^{(i)} = f_x^{(i)};\ \sigma_{zz}^{(i)} = f_z^{(i)};\ (i = 1{,}2). \quad (6)$$

Кроме того, к трехслойным пластинчатым поверхностям применяются следующие динамические и кинематические условия:

при $z = h_0$

$$\sigma_{xz}^{(0)} = \sigma_{xz}^{(1)}, \sigma_{zz}^{(0)} = \sigma_{zz}^{(1)}, U_0 = U_1, W_0 = W_1. \quad (7)$$

Начальные условия нулевые.

Метод решения.

Для решения задачи необходимо задать выражения для функций $f_x^{(0,1)}(x,t)$ и $f_z^{(0,1)}(x,t)$ из граничных условий. Поэтому введем функции внешнего воздействия в следующем виде:

$$\left.\begin{aligned} f_x^{(0,1)} &= \int_0^\infty \begin{matrix} coskx \\ sinkx \end{matrix} \Big\} dk \int_{(l)} \tilde{f}_x^{(0,1)} e^{pt} dp \\ f_z^{(0,1)} &= \int_0^\infty \begin{matrix} sinkx \\ -coskx \end{matrix} \Big\} dk \int_{(l)} \tilde{f}_z^{(0,1)} e^{pt} dp \end{aligned}\right\} \quad (8)$$

где $f_x^{(0,1)}$, $f_z^{(0,1)}-$ функции, регулярные при $Rep \geq 0$ имеющие конечное число полюсов, принимающие произвольные значения внутри некоторой области Ω, содержащий промежуток $(-i\omega_0; i\omega_0)$ мнимой оси, убывающие при $p \to i\infty$ не медленнее, чем $|p|^{-n_0}$, где $n_0 \gg 1$, и такие, что вне Ω их значения пренебрежимо малы. Кроме того функции $\tilde{f}_x^{(0,1)}$ и $\tilde{f}_z^{(0,1)}-$ аналитические, принимающие произвольные значения в промежутки $(0, k_0)$, убывающие при $k \to \infty$, как k^{-n_0}, и пренебрежимо малые при $k > k_0$; $(l)-$ контур $Rep = \nu > 0$ на комплексной плоскости (p), оставляющего область Ω правее себя.

В соответствие с принятыми представлениями функций внешнего воздействия решение поставленной задачи также ищем в виде (4). Это позволяет получить из (5) обыкновенные дифференциальные уравнения второго порядка. В случае симметричных воздействий, когда будут иметь место продольные колебания пластины и оболочки, решением полученных уравнений будет

$$\left.\begin{aligned} \tilde{\varphi}_m(z,k,p) &= A_m^1 ch(\alpha_m z) \\ \tilde{\psi}_m(z,k,p) &= B_m^1 sh(\beta_m z) \end{aligned}\right\} \quad (9)$$

где

$$\alpha_m^2 = k^2 + p^2/a_m^2;\ \beta_m^2 = k^2 + p^2/b_m^2.$$

Перемещения U_m и W_m также представим в виде (8) и подставляя вместе с (9) в выражения перемещений, для преобразованных $\widetilde{U}_m$ и $\widetilde{W}_m$ будем иметь выражения через гиперболические функции и постоянные интегрирования. Далее с использованием стандартных разложений гиперболических функций в степенные ряды, получим

$$\left.\begin{aligned} \widetilde{U}_m &= \sum_{n=0}^{\infty} \left[k\alpha_m^{2n} A_m^{(1)} - \beta_m^{2n+1} B_m^{(1)}\right] \frac{z^{2n}}{(2n)!} \\ \widetilde{W}_m &= \sum_{n=0}^{\infty} \left[\alpha_m^{2n+2} A_m^{(1)} - k\beta_m^{2n+1} B_m^{(1)}\right] \frac{z^{2n+1}}{(2n+1)!} \end{aligned}\right\} \quad (10)$$

В качестве искомых функций в уравнениях колебания трехслойной пластинки примем главные части преобразованных перемещений $\widetilde{U}_0$ и $\widetilde{W}_0$ такой поверхности нулевого слоя, расстояние от поверхности $z = 0$ которой определяется формулой

$$\xi = \chi \cdot h_0;\ -1 \leq \chi < 0; 0 \leq \chi < 1$$

где $\chi-$ постоянное число, удовлетворяющее неравенству $-1 \leq \chi \leq 1$. Для этого в выражениях (10) примем $z = \xi$, $m = 0$ и $n = 0$. Тогда введя обозначения $\widetilde{U}_0^{(0)}$ и $\widetilde{W}_0^{(0)}$ получим

$$\left.\begin{aligned} \widetilde{U}_0^{(0)} &= kA_0^{(1)} - \beta_0 B_0^{(1)} \\ \widetilde{W}_0^{(0)} &= \left[\alpha_0^2 A_0^{(1)} - k\beta_0 B_0^{(1)}\right]\xi \end{aligned}\right\} \quad (11)$$

Решив систему относительно $A_0^{(1)}$ и $\beta_0 B_0^{(1)}$, выразим их через $\widetilde{U}_0^{(0)}$ и $\widetilde{W}_0^{(0)}$. Из контактных условий (7) находятся выражения для постоянных $A_m^{(1)}$ и $B_m^{(1)}$ при $m = 1{,}2$ Затем они подставляются в граничные условия (6). Это позволяет получить уравнения симметричных колебаний трехслойной пластинки в следующем виде

$$\left.\begin{aligned} A_1\left[\frac{\partial}{\partial x} W_0^{(0)}\right] + B_1\left[U_0^{(0)}\right] &= S_1\left[f_x^{(1)}\right]; \\ A_2\left[W_0^{(0)}\right] + B_2\left[\frac{\partial}{\partial x} U_0^{(0)}\right] &= S_2\left[f_z^{(2)}\right], \end{aligned}\right\} \quad (12)$$

где A_k, B_k, S_k-дифференциальные операторы одинаковой структуры, имеющие вид

$$D_k = D_{k1}\frac{\partial^4}{\partial t^4} + D_{k2}\frac{\partial^4}{\partial x^2 \partial t^2} + D_{k3}\frac{\partial^4}{\partial x^4} + \\ + D_{k4}\frac{\partial^2}{\partial t^2} + D_{k5}\frac{\partial^2}{\partial x^2} + D_{k6}$$

D_{kj} равны A_{kj}, B_{kj} или S_{kj}:

$\ldots, A_{26} = 1 - q_2, \ldots., B_{26} = -\xi(1 + q_2)$;

где $i = 1{,}2$; $z_1 = h_0 + h_1$; $z_2 = h_0 + h_2$; $q_m = 1 - \frac{\lambda_m}{\mu_m}$; a_m, b_m- соответственно скорости продольных и поперечных волн в материале пластинки.

Аналогично для трехслойной конической оболочки составим уравнение колебаний:

$$\left.\begin{aligned} C_1\left[W_0^{(0)}\right] + D_1\left[\frac{\partial}{\partial x} U_0^{(0)}\right] &= K_1\left[f_x^{(1)}\right]; \\ C_2\left[\frac{\partial}{\partial x} W_0^{(0)}\right] + D_2\left[U_0^{(0)}\right] &= K_2\left[f_z^{(2)}\right], \end{aligned}\right\} \quad (13)$$

Путем решения этой системы уравнений определяются напряженно-деформированные состояния в трехслойных пластинах и оболочках.

Мы сравниваем полученные результаты с работами других авторов, чтобы проверить их достоверность. Для этого полученную систему уравнений можно перенести на уравнения однослойной пластины и оболочки. В результате были получены уравнения, соответствующие уравнениям, выведенным по классической теории.

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Murod Azizovich Kuziev
SEI "Khujand State University named after acad. B.Gafurov"
candidate of pedagogical sciences, Associate Professor of the department of technology and its methods of teaching
Khujand, Tajikistan
kuzieva.nodira@mail.ru

Nodira Murodovna Kuzieva
SEI "KhSU named after acad. B.Gafurov"
candidate of philological sciences, Associate Professor of the department of Arabic grammar attached to the faculty of oriental languages
Khujand, Tajikistan
kuzieva.nodira@mail.ru

Bahodurjon Pulotovich Ashrapov
SEI "KhSU named after acad. B.Gafurov"
senior lecturer of the department of English language attached to the faculty of oriental languages
Khujand, Tajikistan
Tel.: (+992) 929-08-83-44
https://orcid.org/0000-0001-8545-2329
Researcher ID Web of Science: AHB-8241-2022
bahodur.ashrapov@mail.ru

BASIC STREAMLINES AND STRATEGIES AIMED AT FOREIGN LANGUAGES TEACHING

Abstract: *The given article dwells on the issues concerned with basic streamlines and strategies aimed at foreign languages teaching and communicative competence of students of foreign languages faculties. It is noted that the theme under study is considered to be as a multilateral process irrespectively both on lecturer and student motivating to recognize material. It is proven that the implementation of teaching principles of the educational process establishes diverse approaches to metacognitive attitudes of society historically.*

Into the bargain, basic streamlines and strategies aimed at the implementation of the former in question is a crucial factor in reference to the creation of a full-fledged productive environment.

It is determined that the system of performance of measure and methods of pedagogical consciences realization based on the conducted professional activity occupies the main role in manifestation and enactment of both inner and outward tendencies, on the whole.

Key words: *principles, methods of teaching, educational process, directions and strategies of foreign language teaching, full-fledged productive environment.*

Language: *English*

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Introduction

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It is well-grounded that the topic and issue dealing with younger generation training and education is considered to be one of the most

fundamental ones under the conditions of contemporary communities. Permanently, under enlighteners` and thinkers` angle the issues beset with straightforward directions and approaches to foreign languages teaching and students` communicative competence wrote and published a series writings and inscriptions associated with the theme of the corpus of our study, the young generation remains a care of great prospective and connotation in any society. Luckily, Tajikistan Republic Government focused on and paid special attention to the issue under discussion. Of course, the message of the Founder of Peace and the National Unity – the Leader of Nation, the President of the Republic of Tajikistan, his majesty Emomali Rahmon to the Supreme Council approved on January 26, 2021 is devoted to the national programmer "On Foreign Languages Teaching, including Russian and English" [23, 85-88].

It is worth stressing that the core mission of the higher educational system of our country lies in the materialization of a specialist`s creative personality which requires a number of learners, pupils, students, master`s degree students with the high-quality and proficient in the field of education and innovation.

It reference to it, the targeted vocation and profession acquired and the quality of functions must-possessing for experts and specialist of the relevant sphere mastered with essential understanding, proficient talents and aptitudes both theoretically and practically. Relying on the results obtained and strongly inferences made, done and conducted a large considerable numbers of researches beset with the theme explored, we decided to get rid of repetition of certain statements and opinions expressed to solve the solution of the issues encountered with the former in question in collective accomplishments [1; 2; 3; 4; 5].

Precisely, the relevant educational components and devices are designed on the premise of students` independent assignments assuming the thoroughgoing individual works of each student being considered to as a means of creative distinctiveness enlargement. "Of abundant importance in the SEP (the system of educational process) while learning the targeted language hold with resorting to a variety of Internet resources facilitating all consultation applicants to chat engraved mails (i.e. to advance students` writing skills) synchronously" [6].

The object of the article under consideration is to canvass the issues concerned with principal directions and strategies towards foreign languages teaching and students` communicative competence who study attached to the FLF (foreign languages faculties) at the socio-intercultural communicational level under the auspices of HEE (higher educational establishments).

The aims of our exploration are:

to dwell on the issues associated with principal directions and strategies towards foreign languages teaching and students` communicative competence based on credit system tuition;

to carry out the forms in question under the conditions of educational process attached to universities;

to canvass certain importance and to determine series of perspectives of the former in question theoretically and practically.

The main part

Initially, the majority of scholars in pedagogical studies underscored that the individual-oriented slants were considered to be as the key ones while they confirmed the English as a foreign language occupying the main role into the improvement of learners` all skills and abilities in order to master with their targeted languages smoothly. Additionally, there are certain grounds, streamlines and strategies of FLT aimed at the elevation of its effectiveness based on the variety of approaches to its methods of teaching.

Ya.K. Konrad believes that FLT`s strategies do not single out the educational process into separated traits while they consigned the system of educational surroundings controlling and generated a positive condition in order to prevent an arrival of a native speaker of the targeted language. It is worth stressing that socio-psychological streamlines and strategies are considered to be the educational process implementation. Since CC is a vital goalmouth aimed at FLT and being the principal student`s communicative competence creating an appropriate milieu for communication at classes [10].

Discussion

Strategies aimed at FLT (foreign languages teaching)

It is common-knowledge that social strategies aimed at the formation of affective methods of teaching being a key factor of the creation of a full-fledged productive milieu for FLT. Ya.K. Konrad cited the statements and information on three main sub-groups of such socio-affective strategies [18, p.38].

The first group shadows the purpose of active communicative orientation formation while teaching FL. There are two main aspects of FLT, including reading and listening ones which embroil an approachable mode of assignments. Namely, in the relevant stage of strategy of FLT learners, pupils and students identify the facts by virtue of reading different topics, essays and texts or by dint of doing series of drills comprehensively.

First of all, students learn how to ask questions and sufficiently reply them and to accomplish series of the given exercise aimed at gaining the ultimate effects and results based on the level of knowing the targeted languages.

The second group shadows the aim of the creation of auspicious milieu for such social

arrangement of occupation as partnerships gradually. It is worth stating that students` ability to find contact with other people in any situation being compulsory for the accomplishment of participation in our society, regardless either native speakers or foreigners. However, the relevant skill involves careful realization. In a situation with a foreign language the training of communication skills is complicated both by language itself and by general preparation of participants.

Hereby, one can assert that psychologists speak in such cases to need the formation of a team center, not only about a group as a mostly chaotic collection, those ones who can work together allotting the load and responsibility for its implementation among all team members.

The third group shadows a team attached by mutual ends and intentions, so that the fear of making a mistake in the presence of other people does not arise, for the first time. The former in question generates prerequisites for stereotyped formation which subconsciously transferred from the simulated educational situations to all representatives of the target language culture [24; 25; 26; 27; 28; 29].

Students` CC (communicative competence) who study at the faculties of foreign languages

As far as we are concerned the fact that the English future teacher`s communicative culture is considered to be as a multi-dimensional and multi-modal notion being the system replicating both its internal and external provisions and manifestations of individuality in our society.

Hereby, we can reveal CC as a system substituting in the formation of measure and method of tutorial consciences designed on the premise of professional activity. At the same time, a particular vocational activity is to notice itself as a unity of consideration, manifestation and enactment of both inner and outer trends in each person lifestyle and life depiction.

A modern lecturer is not only a teacher, but a communicative leader in educational and extracurricular activities either, who has universal competencies. In foreign educational institutions, when certifying teachers, which are considered to be as one of the forms of assessing professional competence, the experience of working with teachers is taken into account. Parents and cooperation with colleagues, representatives of various communities, the ability to model the cultural-educational interplanetary conduct educational activities.

It should be underscored that one of the most central modules of academic tutelage lies in the development of TCC. According to a number of scientists` statements and opinions such kinds of component is considered to be as a vital and compulsory part of its broad-spectrum, racial and proficient one. The formation of a future teacher`s professional qualities who acted as an effective accomplice in intercultural communication possesses the basic prominence of a new methods of teaching FL aimed at students` communicative competence [7; 8; 9].

Sufficiently, students` communicative competence of professional and vocational higher establishments designed on the premise of the higher level and releases scenes and visions targeted at further scholastic and didactic accomplishments and reveals the entire knowledge and experience in the sphere of professional one and the enactment of trade and vocational contacts in a multilingual circle determines future teachers` enthusiasm to master with the above-mentioned events. In the course of reconsidering the target settings to prepare pedagogical staff. Seemingly, the issue in question obtains a practice-oriented attractiveness.

Moreover, an invariable approach towards the sustaining agreement under the conditions of modern vocational pedagogical preparation of students follows the practical aspect and background at the arena of bilingual-educational milieu aimed at both communicative and verbal competence strains the remarkable germaneness, upon the whole [11; 12].

CC is familiarized into the social competence structure as one of the crucial mechanisms concerned with the following CC, such as: operational, social, verbal, psychological, orientational, interpersonal ones etc.

V.N. Kunitsina asserts that the unity of VCC (verbal communicative competence) in terms of practical demonstration outlines the relevance of testimonials taking into account the context and subtext of accounts and the deficiency of hitches in both oral and written speech. In fact, CC uses the unpredictability of elucidation of data, good orientation in the sphere of stereotypes and prototypes, the diversity of significances of the relevant notions from the viewpoints of representational figure of speech [10].

Proceeding from the assumption of the relevant points aimed at the formation of essential constituents of CC of future foreign language teachers ought to be offered its enactment at the arena of bilingual educational milieu:

to manifest CI (communicative ideal);

to systemize CNR (communicative norms and rules);

to take into consideration students` singular individualities;

to check students` knowledge and communicational skills.

Thus, the unity of all the above-mentioned components of teachers` CC had better withdraws him/her up-and-coming proficient undertakings while preparing, educating and improving students` communicative competence.

The Results Obtained and Conclusion

Adducing the results of the conducted analysis beset with the theme explored one can come to the conclusion that the consideration and study of strategies aimed at FLT (foreign languages teaching) and students` CC (communicative competence) who study at the faculties of foreign languages is considered to be one of the actual and urgent topics of modern world. It is possible to realize about all metacognitive strategies without singling out a detailed lesson into unglued facets which purposefully manage the educational circle by dint of a positive experience preventing the native speaker.

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Issue Article

Utkir Anjiboyevich Nishonov
Samarkand State University
Associate professor to Department of Theoretical and Applied Mechanics,
utkir-n1978@ramler.ru

Ja'far Ikromovich Rabbimkulov
Samarkand State University
Student

WAVE PROPAGATION IN DISCONTINUOUS MECHANICAL PROPERTIES

Abstract: *The processes of wave propagation in kernels with non-continuous mechanical properties, that is, the processes of propagation and return of waves in kernels with different cross-sectional surfaces and materials, are studied. Along with the theory of the wave, the problems of wave propagation in the s kernels of such characteristics were presented.*

Key words: *rod, solutions, equations, oscillations, amplitude, algorithm.*

Language: *Russian*

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РАСПРОСТРАНЕНИЕ ВОЛН В РАЗРЫВНЫХ МЕХАНИЧЕСКИХ СВОЙСТВАХ

Аннотация: *Изучаются процессы распространения волн в ядрах с непостоянными механическими свойствами, т.е. процессы распространения и возврата волн в ядрах с различными поверхностями поперечного сечения и материалами. Наряду с теорией волн были поставлены задачи о распространении волн в ядрах таких характеристик.*

Ключевые слова: *стержень, решения, уравнения, колебания, амплитуда, алгоритм.*

Введение

Волновые отражения, имеющие место на закрепленном или свободном конце однородного стержня, можно рассматривать как частные случаи общих явлений отражения и преломления, возникающих при любой неоднородности свойств стержня. Условия равновесия и совместимость, которая должна выполняться во всех точках вдоль стержня, требует, чтобы дополнительные отраженные и преломленные волны генерировались на стыке между стержнями с разными свойствами в ответ на действие любой данной падающей волны.

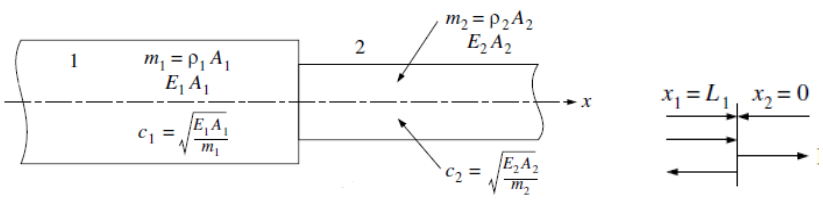

Рис.1

Clarivate Analytics indexed

Рассмотрим, например, место соединения стержней 1 и 2, показанное на рис.1. Свойства стержней с каждой стороны стыка характеризуются их массой на единицу длины $\bar{m}$ и осевой жесткостью EA. Также скорость распространения волны с каждой стороны определяется формулой $V_p = \sqrt{AE/\bar{m}} = \sqrt{E/\rho}$. Прямая волна U_a, которая достигает точки соединения в стержне 1, генерирует отражение U_b, которое движется в отрицательном направлении.

Направление в стержне 1 и в то же время создает преломленную волну U_c, которая распространяется вперед в стержне 2. На стыке накладываются два условия непрерывности:

Вытеснение:

$$U_1 = U_2 \quad \text{или} \quad U_a + U_b = U_c \qquad (1)$$

Сила:

$$N_1 = N_2 \quad \text{или} \quad N_a + N_b = N_c \qquad (2)$$

где указано, что в баре 1 действуют как падающая, так и отраженная волны. Поскольку эти условия непрерывности должны выполняться всегда, должна выполняться и производная по времени от условия смещения, т. е.

$$\frac{\partial U_a}{\partial t} + \frac{\partial U_b}{\partial t} = \frac{\partial U_c}{\partial t} \qquad (3)$$

Но падающая волна может быть выражена в виде

$$U_a = f_a(x - ct) \equiv f_a(\xi) \qquad (4)$$

где переменная ξ введена для удобства. Теперь производные от U_a могут быть выражены как

$$\frac{\partial U_a}{\partial x} = \frac{\partial f_a}{\partial \xi}\frac{\partial \xi}{\partial x} = \frac{\partial f_a}{\partial \xi} \qquad \frac{\partial U_a}{\partial t} = \frac{\partial f_a}{\partial \xi}\frac{\partial \xi}{\partial t} = -c_1\frac{\partial f_a}{\partial \xi} \qquad (5)$$

откуда видно, но деформации, $\frac{\partial U_a}{\partial x} = \varepsilon_a$ и т. д., могут быть выражены через силы, действующие в стержнях: $\varepsilon_a = \frac{\sigma_a}{E} = N_a/A_1E_1$ и т. д.; следовательно, условие совместимости уравнения (2) можно выразить через силовые волны

$$N_c = \alpha(N_a - N_b) \qquad (6)$$

где

$$\alpha = \frac{c_1}{c_2}\frac{A_2}{A_1}\frac{E_2}{E_1} = \sqrt{\frac{m_2E_2A_2}{m_1E_1A_1}} \qquad (7)$$

Наконец, это условие совместимости можно ввести в условие равновесия сил для выражения преломленной и отраженной волн через падающую волну

Из которого

$$U_b = U_a\frac{\alpha-1}{\alpha+1} \quad U_c = U_a\frac{2}{\alpha+1} \qquad (8)$$

Соотношения между падающими, отраженными и преломленными волнами для различных случаев несплошности приведены в таблице.

Таблица 1.

Обстоятельства	$\alpha = \sqrt{\frac{A_2E_2m_2}{A_1E_1m_1}}$	Силовые волны $\vec{N}_a + \vec{N}_a = \vec{N}_c$	Волны смещения $\vec{u}_a + \vec{u}_a = \vec{u}_c$
1. непрерывного	1	1 0 1	1 0 1
2.Фиксированный конец	∞	1 2 1	1 -1 0
3. Свободный конец	0	1 0 -1	1 1 2
4. $\frac{A_2E_2}{A_1E_1} = \frac{м_2}{м_1} = 2$	2	1 1/3 4/3	1 -1/3 2/3
5. $\frac{A_2E_2}{A_1E_1} = \frac{м_2}{м_1} = \frac{1}{2}$	½	1 -1/3 2/3	1 1/3 4/3

Другая связь, представляющая значительный интерес, сразу становится очевидной из уравнения $\frac{\partial U_a}{\partial t} = -c_1\frac{\partial U_a}{\partial x}$, если скорость частицы в левой части обозначить через $\partial u_a/\partial t = \dot{u}_a$, а деформацию в правой части через $\partial u_a/\partial x = \varepsilon_a = \sigma_a/E_1$. Делая эти замены, отношение становится

$$\dot{u}_a = -\frac{V_{p1}}{E_1}\sigma_a \qquad (9)$$

Говоря словами, положительная скорость частиц при распространении волн нормальных напряжений напрямую связана с напряжением сжатия волны коэффициентом пропорциональности для материала V_p/E, где V_p — скорость распространения волны.

Задача. Пусть даны 2 стержня из разных материалов, соединенных последовательно. Эти 2 стержня имеют разную плотность и жесткость, и распространение волн меняется в зависимости от этих свойств. Здесь мы рассмотрим процесс распространения волн у этого осетра. Пусть задано переменное перемещение от конца стержня 1 по закону $u_a = \sin\,\omega t$. В результате этого волна, распространяющаяся в первом стержне, должна вернуться в виде u_b на границе соединения u_a, и

продолжиться в виде u_c во втором стержне. Подбираем характеристики первой стержень следующим образом; $E_1 = 2 \cdot 10^{11}\Pi a, \rho_1 = 7850\frac{\kappa 2}{M^3}$, $A_1 = 0{,}01\text{m}^2$

За второй стержень; $E_2 = 10^{11}\Pi a, \rho_2 = 9000\frac{\kappa\varepsilon}{M^3}$, $A_2 = 0{,}01m^2$

Отсюда согласно (7). $\alpha = \frac{c_1 A_2 E_2}{c_2 A_1 E_1} = 0{,}75.$

Точно так же вышеперечисленное можно сделать в разных вариантах стерженых свойств. Ниже при различных значениях параметра α с помощью программы Maple 9 описываются волны, падающие на участок крепления стержень, возвращающиеся и распространяющиеся вдоль второй стержень.

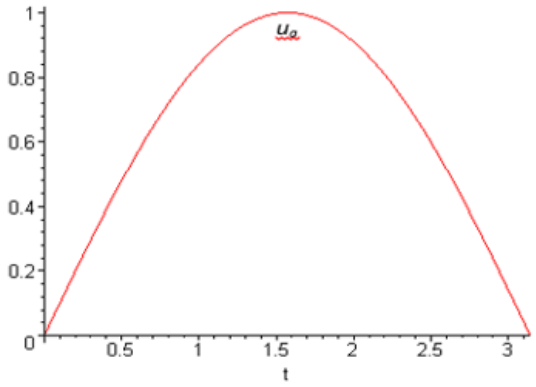

Рис. 2. Распространение волн в однородном стержне

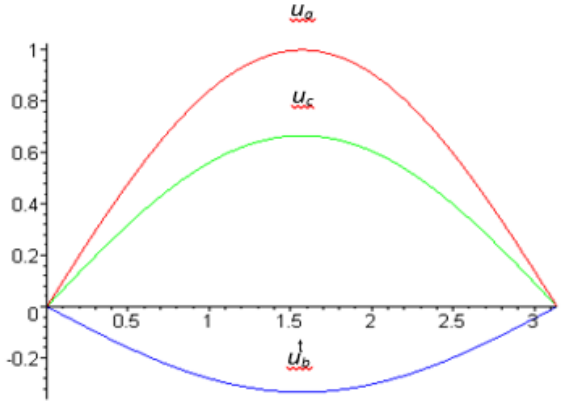

Рис. 3. Распространение волны в стержне при одинаковом материале ступеней $2A_1=A_2$

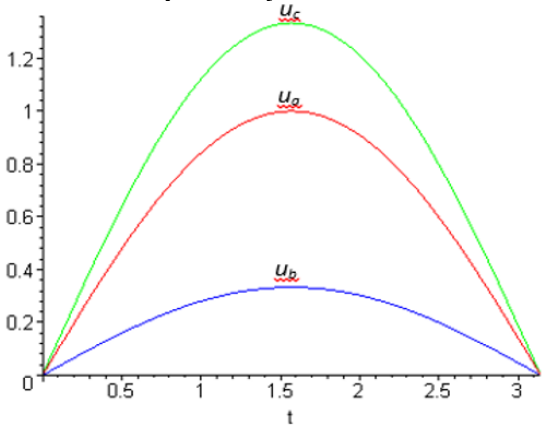

Рис. 4. Распространение волны $2A_1=A_2$ в стержне с тем же материалом ступени

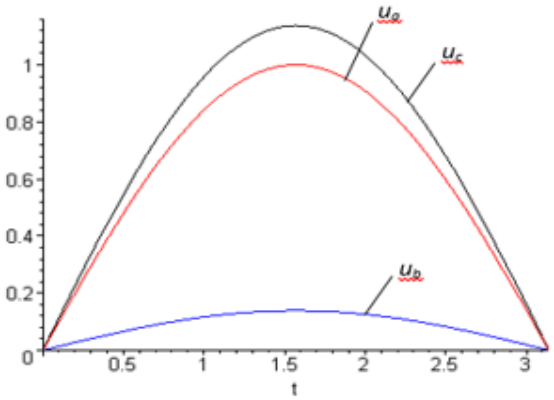

Рис. 5. Распространение волны в стержне разных характеристикб сечение одинаковое (сталь-медь).

Здесь c_1, c_2, c_3, E_1, E_2, E_3, и A_1, A_2, A_3 — механические и геометрические свойства первого, второго и третьего стержней. На рисунках 2-5 показано распространение волны в двухкаскадной корме для разных случаев.

По полученным результатам были определены:

- в однородном стержней волна распространяется без изменения формы;

- часть волны возвращается обратно, а другая часть продолжает распространяться по второй корме на границе последовательно соединенных стержней разных характеристик,

- амплитуда увеличивается при переходе волны от стержня большого сечения к стержню малого сечения;

- амплитуда уменьшается при переходе волны от стержня малого сечения к стержню большого сечения;

- амплитуда увеличивается при переходе волны от кормы из твердого материала к корме из более мягкого материала;

- амплитуда уменьшается при переходе волны от стержня из более мягкого материала к стержню из более твердого материала.

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Issue **Article**

Obid Abdullayevich Abdullayev
Samarkand State University
Assistant professor to Department of Theoretical and Applied Mechanics
xudoyberdiyevz@mail.ru

Nilufar Yusuf qizi Usmonova
Samarkand State University
Student

PROBLEMS IN THE THEORY OF VECTOR FIELDS

Abstract: *The basic concepts of vector analysis are outlined. Ostrogradsky-Gauss and Stokes formulas, methods of nabla-technique. Scalar field and its gradient. Vector field, divergence and vector field curl. Various forms of integral theorems. Several examples are given for calculation in vector analysis.*

Key words: *scalar fields, Laplace operator, Nable operator, vector argument, function vector, Maxwell equations.*

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ЗАДАЧИ ПО ТЕОРИИ ВЕКТОРНЫХ ПОЛЕЙ

Аннотация: *Излагаются основные понятия векторного анализа. Формулы Остроградского- Гаусса и Стокса, приёмы набла- техники. Скалярное поля и ее градиент. Векторное поле, дивергенция и ротор векторного поля. Различные формы интегральных теорем. Приводится несколько примеров для вычисления в векторном анализе.*

Ключевые слова: *скалярные поля, оператор Лапласа, оператором Набла, векторного аргумента, вектор функции, уравнений Максвелла.*

Введение

Векторный анализ в современной математике и механике имеет огромное значение. Если в математическом анализе мы столкнулись с функциями отображающие $R \to R$, и изучали вопросы теории последовательностей, теории пределов, дифференцирование и интегрирование соответствующих функций. Далее возникли задачи в скалярном и векторном полях, по этому возникло в разделе математики называемое векторным анализом. Следует отметить что при этом имеется ввиду обобщение математического анализа – это функциональный анализ. Такие операторы отображающие бесконечно-мерные пространство над R в поле R. Такие операторы принято называть – функционалами.

Нас интересует такие вопросы математики как:

1. Отображение $R \to \mho$ это вектор – функция скалярного аргумента;
2. Отображение $\mho \to R$, т.е. скалярные поля;
3. Отображение $\mho \to \mho$, т.е. векторные поля;

Приведем некоторые определения.

1. Вектор – функцией скалярного аргумента называется функция, область определения которой содержится в R, а область допустимых значений в n – мерном линейном пространстве.

По другому это определение выглядит так:

Пусть дано n- мерное линейное пространство $\mho, \mathcal{D}$ – некоторое числовое множество, где $\mathcal{D} \subseteq R$. Тогда вектор функций называется функция каждому числу, из множества $\mathcal{D}$ сопоставляющая соответствующий вектор из $\mho$.

Понятия придела, непрерывности и произведений вектор-функций вводится как обычно функции.

Например для обычной функции φ имеем

$$\lim_{x\to\alpha}\varphi(x)=A \Leftrightarrow \forall \mathcal{E}>0\,,\exists\delta>0,\forall\times(0<|x-a|<\delta\Rightarrow|\varphi(x)-A|<\varepsilon).$$

Для вектор функций $\vec{f}$ единственное отличие в формуле будет состоять в том, что модуль разности векторов определяется иначе, чем модуль разности чисел.

$$\lim_{x\to\alpha}\vec{f}(t)=\vec{A}\Leftrightarrow\forall\varepsilon>0,$$
$$\exists\delta>0,\forall t\left(0<|t-a|<\delta\Rightarrow\left\|\vec{f}(t)-\vec{A}\right\|<\varepsilon\right)$$

Понятие производной вектор функции идентично традиционному определению производной.

$$\vec{f}'(t)=\lim_{\Delta t\to v}\frac{1}{\Delta t}\left(\vec{f}(t+\Delta t)-\vec{f}(t)\right)$$

т.е. $\forall\varepsilon>0,\exists\delta>0,\forall\Delta t$

$$\left(|\Delta t|<\varepsilon\Rightarrow\left\|\tfrac{1}{\Delta t}(\vec{f}(t+\Delta t)-\vec{f}(t)-\vec{f}'(t)\right\|<\varepsilon\right).$$

Скалярным полем на $\mathcal{D}\in R"$ называется любая функция $f:\mathcal{D}\to R$, т.е. функция, каждому вектору из $\mathcal{D}$ ставящая в соответствие действительное число и в этом случае понятие придела вводится обычным путем:

$$\lim_{\vec{\tau}\to\vec{\tau}_0}\varphi(\vec{\tau})=A\Leftrightarrow\forall\varepsilon>0\,,\exists\delta>0,$$
$$\forall\vec{\tau}\,(0<||\vec{\tau}-\vec{\tau}_0||<\delta\Rightarrow|\varphi(\vec{\tau})-A|<\varepsilon).$$

Понятие производной скалярной функции векторного аргумента не может вводится как обычно. Дело в том что в знаменателе окажется вектор. По этому понятие производной вводится с помощью понятие производной по направлению и с помощью градиента скалярной функции векторного аргумента.

Скалярные поля определим с помощью функции $\mathfrak{U}(x,y,z)=U(\vec{\tau})$

Векторные поля определим с помощью вектор функции $\vec{F}(x,y,z)=F_x\cdot\vec{\imath}+F_y\cdot\vec{\jmath}+F_z\cdot\vec{k}$. В теории поля используется дифференциальные операторы дифференцирования по времени $\left(\dot{B}=\frac{\partial B}{\partial t}\right)$ и по координатам оператор дифференцирования по пространственным координатам $\vec{\nabla}$ - оператор Гамильтона: $\vec{\nabla}=\frac{\partial}{\partial x}\cdot\vec{\imath}+\frac{\partial}{\partial y}\cdot\vec{\jmath}+\frac{\partial}{\partial z}\cdot\vec{k}$ тогда применив оператора $\vec{\nabla}$ к скалярному и векторному полю, можно получить скалярные и векторные величины.

$$\vec{\nabla}\cdot U=grad\,U=\frac{\partial U}{\partial x}\cdot\vec{\imath}+\frac{\partial U}{\partial y}\cdot\vec{\jmath}+\frac{\partial U}{\partial z}\cdot\vec{k}$$

$$\vec{\nabla}\cdot\vec{F}=div\,\vec{F}=\frac{\partial F_x}{\partial x}+\frac{\partial F_y}{\partial y}+\frac{\partial F_z}{\partial z}$$

$$\vec{\nabla}\cdot\vec{F}=\begin{vmatrix}\vec{\imath}&\vec{\jmath}&\vec{k}\\ \frac{\partial}{\partial x}&\frac{\partial}{\partial y}&\frac{\partial}{\partial k}\\ F_x&F_y&F_z\end{vmatrix}=$$

$$=\left(\frac{\partial F_x}{\partial y}-\frac{\partial F_y}{\partial x}\right)\cdot\vec{\imath}+\left(\frac{\partial F_x}{\partial z}-\frac{\partial F_z}{\partial x}\right)\cdot\vec{\jmath}+\left(\frac{\partial F_y}{\partial x}-\frac{\partial F_x}{\partial y}\right)\cdot\vec{k}$$

дифференциальные операторы второго порядка

$\vec{\nabla}^2=\vec{\nabla}\cdot\vec{\nabla}=\frac{\partial^2}{\partial x^2}+\frac{\partial^2}{\partial y^2}+\frac{\partial^2}{\partial z^2}$ – оператор Лапласа.

Приведем основные математические тождества теории поля:

$$\vec{\nabla}\cdot(\vec{\nabla}\cdot\vec{F})=grad(div\vec{F}),$$
$$\vec{\nabla}\cdot(\vec{\nabla}\cdot\vec{F})=rot(rot\,\vec{F}),$$
$$\vec{\nabla}\cdot(\vec{\nabla}\cdot U)=rot(grad\,U),$$
$$\vec{\nabla}\cdot(\vec{\nabla}\cdot\vec{F})=div(rot\,\vec{F}),$$
$$\vec{\nabla}\cdot(\vec{\nabla}\cdot\vec{F})=\vec{\nabla}\cdot\vec{F}+\vec{\nabla}\cdot(\vec{\nabla}\cdot\vec{F});$$

Операторы векторного анализа эффективно используется при описании электромагнитных процессов приведем полную систему уравнений Максвелла. Полный анализ макроскопических электромагнитных процессов возможен на основе полной системы основных уравнений электродинамики, к числу которых относятся – уравнения Максвелла:

$$rot\,\vec{H}=-\frac{\partial\vec{D}}{\partial t}+\vec{\jmath}^{\,0},$$
$$rot\,\vec{E}=-\frac{\partial\vec{B}}{\partial t},$$
$$div\,\vec{D}=\varrho^{9},$$
$$div\,\vec{B}=0.$$

Система уравнений состояний (материальные уравнения)

$$\vec{D}=\mathcal{E}_q\cdot\vec{E},\ \vec{B}=\mu_q\cdot\vec{H},\quad \vec{\jmath}=\sigma\cdot\vec{E}\,.$$

В некоторых случаях уравнения Максвелла удобно применять в интегральной форме

$$\oint_L\vec{H}d\vec{e}=\int_S\left(\frac{\partial\vec{D}}{\partial t}+\vec{\jmath}^{\ni}\right)\cdot d\vec{S},\quad \oint_L\vec{E}d\vec{e}=-\frac{d}{d\,t}\int_S\vec{B}\,d\,\vec{S}.$$

$$\oint_L\vec{H}d\vec{s}=\int_S(\varsigma^{\ni}dv),\quad \oint_L\vec{B}d\vec{s}=0.$$

Выражение вектора $grad\,T$ в произвольных ортогональных координатах ξ_1,ξ_2,ξ_3 и, в частности, в декартовых координатах x,y,z в которых $h_x=h_y=h_z=1$;

$$grad\,T=\frac{\vec{\imath}_1}{h_1}\frac{\partial T}{\partial\xi_1}+\frac{\vec{\imath}_2}{h_2}\frac{\partial T}{\partial\xi_2}+\frac{\vec{\imath}_3}{h_3}\frac{\partial T}{\partial\xi_3};$$
$$grad\,T=\vec{\imath}\cdot\frac{\partial T}{\partial x}+\vec{\jmath}\cdot\frac{\partial T}{\partial y}+\vec{k}\cdot\frac{\partial T}{\partial z};$$

Для записи пространственных производных часто бывает удобно воспользоваться оператором Гамильтона (оператором Набла) $\vec{\nabla}$. В декартовых координатах $\vec{\nabla}=\vec{\imath}\cdot\frac{\partial}{\partial x}+\vec{\jmath}\cdot\frac{\partial}{\partial y}+\vec{k}\cdot\frac{\partial}{\partial z}$ тогда $grad\,T=\vec{\nabla}\,T$. В сферической системе координат R,θ,φ производная

$$grad\,T=\vec{\imath}_R\cdot\frac{\partial T}{\partial R}+\frac{\vec{\imath}_\theta}{R}\cdot\frac{\partial T}{\partial\theta}+\frac{\vec{\imath}_\varphi}{R\cdot\sin\theta}\cdot\frac{\partial T}{\partial\varphi}\,.$$

Постановка задачи и метод решения.

1. В декартовой системе координат доказать, что скалярное произведение $(\vec{\nabla}\vec{M})=div\,\vec{M}$. Решение. Так как $\vec{\nabla}=\vec{\imath}\cdot\frac{\partial}{\partial x}+\vec{\jmath}\cdot\frac{\partial}{\partial y}+\vec{k}\cdot\frac{\partial}{\partial z}$, $\vec{M}=\vec{\imath}\cdot M_x+\vec{\jmath}\cdot M_y+\vec{k}\cdot M_z$. Тогда

$$\vec{\nabla}\vec{M} = \left(\left\{\vec{\imath}\cdot\frac{\partial}{\partial x}+\vec{\jmath}\cdot\frac{\partial}{\partial y}+\vec{k}\cdot\frac{\partial}{\partial z}\right\}\{\vec{\imath}\cdot M_x+\vec{\jmath}\cdot M_y+ +\vec{k}\cdot M_z\}\right)=\frac{\partial M_x}{\partial x}+\frac{\partial M_y}{\partial y}+\frac{\partial M_z}{\partial z}=div\,\vec{M}$$

2. В декартовой системе координат доказать, что $[\vec{\nabla}\,\vec{M}] = rot\,\vec{M}$. Решения, что

$$[\vec{\nabla}\,\vec{M}] = \vec{\imath}\cdot\left(\frac{\partial M_z}{\partial y}-\frac{\partial M_y}{\partial z}\right)+\vec{\jmath}\cdot\left(\frac{\partial M_x}{\partial z}-\frac{\partial M_z}{\partial x}\right)+ +\vec{k}\cdot\left(\frac{\partial M_y}{\partial x}-\frac{\partial M_x}{\partial y}\right)=rot\,\vec{M}$$

3. Получить выражения для пространственных производственных а) $div\,grad\,T$, б) $rot\,grad\,T$ поля T в декартовой системе координат x, y, z .

Решения.

а) $div\,grad\,T = (\vec{\nabla}\cdot\vec{\nabla}\,T) = \left(\left\{\vec{\imath}\cdot\frac{\partial}{\partial x}+\vec{\jmath}\cdot\frac{\partial}{\partial y}+\vec{k}\cdot\frac{\partial}{\partial z}\right\}\cdot\left\{\vec{\imath}\cdot\frac{\partial T}{\partial x}+\vec{\jmath}\cdot\frac{\partial T}{\partial y}+\vec{k}\cdot\frac{\partial T}{\partial z}\right\}\right) =$

$$=\left\{\vec{\imath}\cdot\frac{\partial^2 T}{\partial x^2}+\vec{\jmath}\cdot\frac{\partial^2 T}{\partial y^2}+\vec{k}\cdot\frac{\partial^2 T}{\partial z^2}\right\}=\nabla^2 T$$

$$div\,grad\,T = (\vec{\nabla}\cdot\vec{\nabla}\,T) = \nabla^2 T = \frac{\partial^2 T}{\partial x^2}+\frac{\partial^2 T}{\partial y^2}+\frac{\partial^2 T}{\partial z^2}.$$

∇^2 – оператор Лапласа. В декартовых координатах $\frac{\partial^2}{\partial x^2}+\frac{\partial^2}{\partial y^2}+\frac{\partial^2}{\partial z^2}$.

б) $ratgrad\,T = [\vec{\nabla}\cdot\vec{\nabla}\,T] = \left[\left\{\vec{\imath}\cdot\frac{\partial}{\partial x}+\vec{\jmath}\cdot\frac{\partial}{\partial y}+\vec{k}\cdot\frac{\partial}{\partial z}\right\}\cdot\left\{\vec{\imath}\cdot\frac{\partial T}{\partial x}+\vec{\jmath}\cdot\frac{\partial T}{\partial y}+\vec{k}\cdot\frac{\partial T}{\partial z}\right\}\right] = 0.$

Таким образом: $rotgrad\,T = 0$.

Приведем несколько формул для вторых производных векторного поля $\vec{M}$

а) $\vec{\nabla}^2\cdot\vec{M} = (\nabla^2 M_x,\ \nabla^2 M_y,\ \nabla^2 M_z)$

б) $div\,rot\,\vec{M} = 0$

в) $grad\,div\,\vec{M} = rot\,\vec{M} = \vec{\nabla}^2\cdot\vec{M}$.

Принимая во внимание то, что $\varepsilon_x = \frac{\partial u}{\partial x}$, $\varepsilon_y = \frac{\partial v}{\partial y}$, $\varepsilon_z = \frac{\partial w}{\partial z}$ получим $\theta = \varepsilon_x+\varepsilon_y+\varepsilon_z = \frac{\partial u}{\partial x}+\frac{\partial v}{\partial y}+ +\frac{\partial w}{\partial z} = div\,\vec{U}$ то есть дивергенция поля перемещений $\vec{U}$ ровна относительным изменениям θ объемов dv элементов упругой среды при деформациях. Производная $rot\,\vec{U} = 2\vec{\omega}$ характеризует повороты элементов dv упругой среды, а производная $div\,\vec{U} = \theta$ - изменение объемов dv.

В общем случае, поля смешанный, теории Гельмгольца:

$$\vec{U} = \vec{U}_P + \vec{U}_S = grad\,\Phi + rot\,\vec{\Psi}$$

$\vec{U}_P$ - потенциальная составляющая поле смещений $\vec{U}$,

$\vec{U}_S$ - соленоидальная составляющая поле смещений $\vec{U}$

Уравнение Ламе или уравнение передачи колебаний в абсолютно – упругой среде:

$$(\mu+\partial)grad\,\theta+\mu\nabla^2\vec{U}+\varsigma\cdot\vec{F} = \sigma\frac{\partial^2\vec{U}}{\partial t^2}$$

где $\theta = div\,\vec{U}$.

Если $\vec{F} = 0$, получим уравнение Ламе для свободных колебаний

$$(\mu+\partial)grad\,\theta+\mu\nabla^2\vec{U} = \varsigma\frac{\partial^2\vec{U}}{\partial t^2}$$

Учитывая что

$\nabla^2\vec{U} = grad\,div\,\vec{U} - rot\,rot\vec{U}$ последнее уравнение представим в виде:

$(\mu+\partial)grad\,\theta+\mu\,grad\,div\,\vec{U}-\mu rot\,rot\,\vec{U} =$ $\sigma\frac{\partial^2\vec{U}}{\partial t^2}$ так как $div\,\vec{U} = \theta, rot\,\vec{U} = 2\vec{\omega}$, получим

$$(\lambda+2\mu)grad\,\theta-2\mu\,rot\,\vec{\omega} = \rho\frac{\partial^2\vec{U}}{\partial t^2}$$

при однородной по параметрам λ, μ, ς среде $\vec{\nabla}\gamma = 0, \vec{\nabla}\mu = 0,$

$\vec{\nabla}\rho = 0$ из последнего уравнения получим

$(\lambda+2\mu)\,div\,grad\,\theta-2\mu\,div\,rot\,\vec{\omega} = \rho\frac{\partial^2 div\vec{U}}{\partial t^2}$

принимая во внимание $div\,grad\,\theta = \nabla^2\theta$, $div\,rot\,\vec{\omega} = \theta, div\,\vec{U} = 0$ получим: $(\lambda+2\mu)\nabla^2\theta = \rho\frac{\partial^2\vec{U}}{\partial t^2}$ или $\nabla^2\theta = \frac{1}{v_p^2}\frac{\partial^2\vec{U}}{\partial t^2}$, где $v_p = \sqrt{\frac{(\lambda+2\mu)}{\varrho}}$

Таким образом, для дилатации $\theta = div\,\vec{U}_P$ получили волновое уравнение.

Выводы.

В заключении отметим тот факт, что векторный анализ имеет огромное приложение. Теория поля представляет собой дифференциальное и интегральное исчисления функций векторного аргумента. Поэтому раздел математики называется векторным анализом.

В физике результаты этой теории используются в электродинамике, гидродинамике и аэродинамике, термодинамике, механике деформируемого твёрдого тела, вибромеханике, механике плазмы, диффузионной механике смесей, теории относительности и т.д..

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Issue Article

Javohirkhon Ravshankhonovich Nasrullaev
Samarkand State Institute of Foreign Languages
independent researcher
Uzbekistan

THE SIGNIFICANCE OF THE LINGUISTIC WORLDVIEW AS AN INTEGRAL COMPONENT OF THE CONCEPTUAL FRAMEWORK

Abstract: *This paper examines the concept of the linguistic picture of the world, focusing on its cognitive nature and the factors that contribute to its formation. It explores how individuals perceive and interpret the surrounding world based on their background knowledge, experiences, and expectations. The role of nature, culture, and cognition in shaping the linguistic worldview is discussed, highlighting the influence of external living conditions, cultural norms, values, rituals, and cognitive processes. The paper emphasizes that language is not a direct reflection of the world but rather an individual's subjective interpretation, capturing meaningful and conscious aspects of their experience. It also addresses the variations in the linguistic picture of the world across different languages, emphasizing the importance of distinguishing between scientific and linguistic perspectives. The study contributes to a comprehensive understanding of the linguistic models of the world within the broader context of human sciences.*

Key words: *linguistic picture of the world, cognitive nature, perception, interpretation, nature, culture, cognition, subjective interpretation, language variation, scientific perspective, linguistic perspective, human sciences.*

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Introduction

An individual, functioning as a cognitive entity, embodies a distinct system of knowledge, ideas, and opinions concerning the objective reality. This system, referred to as the “picture of the world” (or conceptual system of the world, model of the world, or image of the world) within various scientific domains, is examined from different perspectives.

The linguistic picture of the world represents the reflection of reality through language, serving as a cognitive image of consciousness. It encompasses a comprehensive model that encapsulates knowledge within a conceptual system as expressed through language. It is customary to distinguish the linguistic picture of the world from the conceptual or cognitive model of the world, which forms the basis for the linguistic embodiment and verbal conceptualization of human understanding about the world [5; 46].

Furthermore, the linguistic or naive picture of the world is often interpreted as a reflection of everyday, common-sense notions about the world. The concept of a naive model of the world posits that each natural language reflects a specific way of perceiving the world, which is assumed to be universally applicable to all native speakers. Yu.D.Apresyan characterizes the linguistic picture of the world as naive in the sense that scientific definitions and linguistic interpretations do not always align in scope and content [1; 357]. While the conceptual picture of the world, or the “model” of the world, is subject to continuous evolution, reflecting cognitive and social activities, certain elements of the linguistic picture of the world retain remnants of long-standing ideas held by individuals about the universe.

Amidst a diverse range of viewpoints regarding the nature of the linguistic picture of the world, it is widely acknowledged that the linguistic categorization of reality varies across different societies. As individuals engage in their activities, a subjective representation of the external world

emerges within their consciousness. Language acquisition occurs parallel to the acquisition of knowledge about the surrounding reality. Consequently, alongside the logical or conceptual picture of the world, a linguistic picture also takes shape. Although the linguistic picture of the world does not contradict the logical one, it is not identical to it.

R.I. Pavlenis introduced the term "conceptual system" to refer to the conceptual picture of the world, which develops during an individual's process of comprehending the world. It serves as a reflection of the national spiritual activity of a particular community. Language acts as a tool for capturing the specific knowledge that characterizes a given community, thus revealing the content of the conceptual system.

An integral component of the conceptual system, reflecting its national peculiarities, is the concept or meaning, which represents a cognitive structure resulting from the reflection of a particular aspect of reality. The concept encompasses various forms of content, such as conceptual, verbal, associative, and cultural elements. Consequently, cross-linguistic comparison of concepts facilitates the identification of both national and universal components within the content of speakers' conceptual systems across different languages. The distinction in thought patterns is influenced by the presence of distinct national concepts embedded within the culture [7; 286].

S.I. Dracheva delves into an examination of the distinctive national characteristics present within the conceptual picture of the world. Given the universal nature of cognitive processes involved in perceiving the surrounding world, the content of the conceptual component among speakers of different languages exhibits notable similarities. Furthermore, the core components of multicultural concepts tend to align to a greater extent, while national specificity becomes evident in peripheral aspects and the cultural dimension of the concept [3; 60-64].

Therefore, when exploring the peculiarities of knowledge representation among individuals who speak different languages or are bilingual, the concept assumes a fundamental role. Analyzing specific concepts serves as a basis for identifying the national characteristics within fragments of the conceptual system, which are contingent upon factors such as the activities of individuals and cultural or geographical considerations.

The national identity of the conceptual system is also reflected through the presence of particular concepts embedded within a culture. The collection of such concepts determines the distinctiveness of the collective mindset, making their identification crucial not only for understanding the nuances of speech generation but also for discerning the intricacies of meaning formation. Consequently, the data derived from this analysis can find applications in fields such as sociology, political science (specifically ethnic conflict studies) [3; 60-64].

The comparative analysis of concepts across different languages reveals a consistent correlation between universal and idioethnic components. The conceptual aspect of a concept, which is shared by speakers of various languages in reference to the same aspect of reality, is considered universal, while national and cultural specificities manifest in other components.

When examining R.I.Pavlenis' theory of the conceptual system, V.A.Pishchalnikova highlights that a concept encompasses both psychological and personal meanings [9; 15]. At its core, a concept represents a generalization of objects belonging to a specific class based on their distinctive characteristics. The presence of an intersubjective element within each component of the concept enables communication between individuals with different conceptual systems.

According to [8; 380], the meanings of words and other meaningful units acquired by an individual become integral components of the corresponding concept, capable of representing the concept as a whole alongside other components such as visual and auditory elements. Consequently, the perception of a linguistic sign activates the subjective figurative, conceptual, and emotional information contained within the concept, and vice versa, any form of such information can be associated with the sign [9; 12]. Meaning is understood as the process of shaping consciousness, combining various sensory characteristics (visual, tactile, auditory, gustatory, verbal) associated with the object.

Hence, the conceptual picture of the world can be viewed as an information system encompassing knowledge about objects that is actively and potentially represented in an individual's cognitive and practical activities. The concept serves as the unit of information within this system, serving to capture and actualize the conceptual, emotional, associative, verbal, cultural, and other content related to the objects of reality embedded in the structure of the conceptual picture of the world.

The issue of understanding must primarily be approached as the challenge of comprehending the world from the perspective of the subject's conceptual framework, which is externalized and manifested through their activities.

The process of conceptualizing the world through language, specifically through the use of words, holds significant importance. R. Lado, one of the pioneers of contrastive linguistics, once remarked: "There is an illusion, sometimes even among educated individuals, that meanings are universally the same, and that languages only differ in the way they express these meanings. In reality, the values through which we classify our experiences are culturally determined,

resulting in substantial variations from one culture to another" [4; 34-35]. Not only do meanings vary, but the composition of vocabulary as well. The particularities of such variations constitute an integral part of linguistic worldviews.

As mentioned earlier, the perception of the surrounding world is influenced to some extent by the cultural and national characteristics of native speakers of a given language. Consequently, from the standpoint of ethnology, linguoculturology, and other related fields, the most intriguing aspect lies in understanding the reasons behind discrepancies in linguistic worldviews, which indeed exist. Addressing such a question requires transcending the boundaries of linguistics and delving into the intricacies of other peoples' knowledge about the world. Various factors contribute to these discrepancies, although only a select few appear discernible and thus hold primary significance. Three principal factors or causes of linguistic differences can be identified: nature, culture, and cognition. Let us examine these factors.

The first determinant is nature, which primarily encompasses the external living conditions of individuals, influencing language variations. Naming animals, localities, and plants that one is familiar with, as well as describing the natural state, are all shaped by personal experiences. Linguistic consciousness is influenced by natural circumstances, even extending to phenomena like color perception. The categorization of color shades often stems from semantic cues linked to the visual perception of objects in the surrounding natural environment. Specific colors become associated with particular natural entities. While there are some shared associations across linguistic cultures, there are also variations [1; 351].

The nature in which individuals exist initially shapes their realm of associative representations in language, evident through metaphorical shifts in meaning, comparisons, and connotations.

The second factor is culture. "Culture is something that individuals did not inherit from the natural world, but rather something they brought forth, created themselves" [5; 51]. The outcomes of material and intellectual activities, socio-historical developments, aesthetic, moral norms, and values that distinguish different generations and social communities manifest in diverse conceptual and linguistic representations of the world. Language captures the distinct features of cultural domains. Furthermore, language discrepancies can be attributed to national rituals, customs, folklore, mythological conceptions, and symbols. Cultural models embodied in specific terms propagate beyond borders, becoming known even to those unfamiliar with the culture in question. Recent research has focused extensively on this topic.

Regarding the third factor, cognition, it is crucial to acknowledge that individuals possess distinct rational, sensory, and spiritual approaches to perceiving the world. The ways in which people understand the world differ among individuals and communities. Such disparities become apparent in the outcomes of cognitive processes, which manifest in the specific linguistic representations and distinctive linguistic consciousness of various groups. V. von Humboldt referred to this influence of cognition on language differences as "different ways of seeing objects" [2; 156-158].

It is crucial to consider that the perception of a situation or object is directly influenced by the perceiving subject's background knowledge, experiences, expectations, and physical location. This dependence allows for the description of the same situation from various perspectives, thereby enhancing its understanding. Although the process of "constructing the world" is subjective, it still involves the consideration of diverse objective aspects and the actual state of affairs, resulting in the creation of a "subjective image of the objective world".

When investigating the cognitive foundations of language usage, E.S.Kubryakova appropriately highlights the linguistic picture of the world as a structure of knowledge about the world, emphasizing its cognitive nature. By studying derivational processes from a cognitive perspective, we can elucidate not only the specifics of mapping the world in a particular language but also contribute to general principles concerning human comprehension of fundamental categories of existence, the characteristics of the universe, and the laws governing the world's structure in both the physical aspect of human existence and their social organization, as well as the entire system of their values and moral and ethical assessments [3; 336-337].

When evaluating the picture of the world, it is essential to recognize that it is not a mere reflection or window into the world, but rather an individual's interpretation of the surrounding world and a means of understanding it. Language does not merely mirror the world but captures not only what is perceptible but also what is meaningful, conscious, and interpreted by individuals [3; 95]. Consequently, a person's understanding of the world is not limited to sensory perception alone. Rather, a significant portion of their world comprises the subjective results of their interpretation of the perceived information. Hence, it is appropriate to view language as a "mirror of the world", albeit an imperfect one that represents the world indirectly through the subjective cognitive refraction of a community of individuals.

As evident, there are multiple interpretations of the concept of the "linguistic picture of the world". This divergence arises due to variations in the pictures of the world across different languages, as the perception of the surrounding world is influenced by the cultural and national characteristics of native speakers. Each linguistic picture of the world presents

its own perspective, highlighting the importance of distinguishing between the concepts of the "scientific (conceptual) picture of the world" and the "linguistic (naive) picture of the world".

Thus, at the current stage of linguistic development, linguistic models of the world are subjected to description and interpretation within the broader domain of human sciences. The picture of the world in any language is explored not only in the context of folklore, mythology, culture, history, customs, and psychology of a particular community but also within the realm of linguistics.

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Issue Article

Gulzixan Muxammedkarim qizi Umirova
Uzbekistan state institute of arts and culture
2-course master

THE EDUCATION OF YOUNG PEOPLE OF KARAKALPAK ORAL FOLK

Abstract: *The article deals with the historical memory occupy an important place in the system of national spiritual values. Historical heritage and historical memory are of great importance for increasing spirituality and strengthening the spirit of the people.*

Key words: *achievements, heritage, knowledge, concept, culture, nation.*
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Introduction

The concept of national spiritual heritage has a broad concept, which includes:

- historical heritage and historical memory;
- cultural monuments, finds, ancient manuscripts;
- achievements of science and philosophical achievements;
- art and national literature;
- moral qualities;
- religious values;
- customs, rites and rites;
- education, education, etc.

Historical heritage and historical memory occupy an important place in the system of national spiritual values. Historical heritage and historical memory are of great importance for increasing spirituality and strengthening the spirit of the people. History should be reliable and conclusions should be drawn from it.

Karakalpak people occupy an honorable place among the nationalities that have made a worthy contribution to the treasures of world culture. Cultural monuments, examples of architectural art, eccentric manuscripts are invaluable masterpieces of our national clergy. Preserving and bringing them to future generation is one of the most pressing issues in the field of spirituality.

Knowledge and its achievements wealth extending beyond a national or territorial border, recognized by the whole world, serving a universal human service. However, the work of the scientist and his scientific discoveries, first of all, glorify his nation and homeland, turn the national value into the mankind.

Multimillion-dollar, spirituality and psychology of the people, especially in the developing of art and literature. Great works that perform virtue and purity, humanity, truth in whatever genre or language they sound, glorify the world, after all, manna glorifies the international authority of this nation.

In the system of national spiritual values, moral qualities, features, religious values occupy a worthy place and become an important condition for awareness of national identity. Moral and religious values in most cases are interspecific are equally important in the spiritual rise of society, the upbringing of the younger generation.

Each people, the spiritual values created by the nation, their worldview and attitude to life, their unique features, especially in traditions and ceremonies, manifested themselves. They perform a number of social functions are of great importance in preserving national identity, educating young people, absorbing a certain ideas psychology.

National features of upbringing and education also take place in the system of spiritual values. The more real the future of the young people, the more well-known need for their education in the national

spirit. National education is a factor in preserving the life and ensuring the future of the people.

Thus, every component of national spiritual values is important for strengthening the balance and ensuring the future of the people.

The work of folk oral, or folklore is a phenomenon that widely reflects the components of all the spiritual values listed above. It occupies a large place in the history of culture as a spiritual property of the people. It is one of the most important sources in the developing of culture.

The famous Russian writer M. Gorky says in one of his statuses: "The people not only create creative power, but also create all material values, they are the only and inexhaustible source of spiritual values, the first in time, beauty and wisdom of his work - a philosopher and poet, all great poems. It was he who created all the tragedies of the Earth and their history of culture of the whole world. "In reality, the work of folk oral clearly reflects all the secrets of human-natural, human-social relations, hypotheses that determine the developing of science, technology, moral requirements adopted in society. In the form of research articles, folk sheep, fairy tales, fast fairy tales, dastans, hero lands, fairy tales, mysteries, terms, they were born from generation to generation. Each next generation contributed to its content and species. Therefore, the creativity of our folk oral is the mentality of every people.

The work of the Karakalpak oral ideas love for the Motherland, service to the people. Despite the fact that we keep the classical literature of a particular people, folk sheep occupy a special place in it. Respecting folk wolves, the wolf was regarded as an artistic image of the most beautiful phenomena in nature, as an original coral of art.

M. Gorky was surprised by the algae in it, excellent sensitivity, deep ideas: "The most great donor in the water. Feathers with platbands are always short, but wisely, even if you are reading an entire book. "

The more meaningful a person's life, the richer the people's sheep serve. Because first art is a reflection of a person's life in figurative art.

One of the spiritual riches of the Karakalpak people, who throughout his life, is a folk wolf. Throughout his life, he developed, reflecting the desires of the people, dreams.

"The Karakalpak people writes N. Davkaraev, in the joyful days could live without dolls, music, oral poetry. From a day, the bullet has always been sturdy."

Feelings of love for the Motherland are clearly manifested in the work of Karakalpak oral in terms and historical sidelines.

Terms often sing politico-social, historical themes. It will present dreams, desires of the people, separate feelings. "Urmanbet dances", "Urmanbet dances", "Pukskon Ate", "Talan Ball Mir".

The term "Urmanbet dance" will be built on worried historical events. In the XIV-XV centuries, the political union part of the Khanate of the Golden Horde.

According to historical data, the political union was dominated by Karakalpaks. However, at the end of the 15th century, as a result of the attack of Amir Temur, the Khanate collapsed in the Golden Valley. Now his Karakalpak allies are also beginning to spread and get into a stir. He is attacked by during the acute and war, the domestic hero Urmanbet was mined. This misfortune and wealth of the country is clearly described in the collection "At Urmanbet biy":

U’rmonbet biy u’lganda,
U’n son nu’ǵoy bu’lganda,
U’ǵil qolmadi, qiz qoldi,
Sebil nu’ǵoy qu’zǵoldi.

The national oral still has a national team called "Dance Day." This term also born the peaceful, happy times that the people experienced in their homeland, when they were not happy long, to worry their misfortune, calamity, distress.

The Karakalpak people forcibly threw out Yailovin, a corn place, beauty and nature on the banks of the Yedil River, Zhayyk, and then moved to the Turkestan steppes. However, this place does not give them a long way. Since 1762, the people who began to live peacefully are again attacked by the Dzungars. Robbing property and. During 1743-1762, small Kazakh khanates made impeccable raids. These karakalpaks are experiencing great difficulties. On the other hand, the heavy part of the Kokand Khanate, the Emirate of Bukhara lives on the third side. These historical circumstances force the Karakalpaks to leave Turkestan.

The main positive hero of historical firsts is a hardworking people. His worries, heavy in the head, his struggle to overcome difficulties, patriotic feelings in historical arms.

Such high human qualities as love for the fatherland, loyalty to the Motherland, indicate that the country has surpassed the interests of its country and therefore sacrifices itself. In this country, a person is required to have irreversible passion, irreversible selfless work. This idea is particularly widely reflected in the Karakalpak boards. Take the example of "Alpomish." He is one of the most fertile friends for the Karakalpak, Uzbek, Kazakh people. Its karakalpak version reflects unification, free residence, the fight against enemies unity. In conversation about the people of Boysari under the slogan "Be deep, alive" - the unity of a friendly people, the Fatherland, born distrust idea he".

The discovery of the main "Alpomish" will be consistently proved by the capture of Alpomish Barshin, reconciliation with Karakan, the struggle with Tashakhan, the blossoming of internal and external enemies. Alpomish's struggle with Tayshahan, his win in this struggle, the people's

struggle against the Zul kings on the one hand and the mood of his defeat, and on the other, the confrontation between Alpomish and Ashim and his usual Chukpun kingdom idea. The main attention dostan is the friendship of Karakan and Alpomish. This is one of the best relics idea the development of the world. The wisdom in them lies not only in fact that the two Botirs have friendliness, but also in fact that they are supporters of justice, express the desire of two people to be closer to each other. This fact in "Alpomish" sounds like a long tradition in Karakalpak poetry.

One of the most common among Karakalpaks is Koblan. His version of fat contained: Befarzand Hezbai is rich, and his funds were exported by Minister Akchahan Karthuja. The weary Gezbay spent the night in cemeteries, and then botir named Koblan. Koblan overcomes several walls, the arch and marries Kurtka, sister of Karaman, daughter of Seydimhan with difficulties. Akchahan wanted to spare Koblan. Bastalb sends Buk to the virgins, then to Kuybikli to Borsa, and when Koblan went to Kuakikli, he transfers him to the khan, where the country Alshaǵir. Koblan Buyka commits suicide, Kuybikli together with Karaman, who arrived in Kurt on the call of a horse liberates the country of Koblan. In order to expel Akchahan Kublan, Devkampir and Charkley soften on to the walls. The pendant returns home. Kills Yovi Akchahan Koblan has a son of Mirza Sayim. He also became enraged and married Kizpolvan, who killed his father Ersaim pendant. Mirza Sayyim takes his place and achieves his goal.

The main idea of "Koblan" are determined by the desire and struggle of the people to live independently of foreign invaders. At the same time, in a sign of cruelty and injustice, he reveals the actions of Akchahan and his ministers. Koblan is a hero who meets popular desires, he is a defender of justice. Akchahan Koblan previously paid tribute to his parents, but after Koblan's, he can no longer wash Iskboin's as before. Worried about assault, Akchahan will no longer enter into an open struggle with him, but will seek him fraudulently. In order to kill Khan Kublan, he slowed him to the walls abroad. From this conflict, it becomes clear who is white and who is black. The force of the first is spent on draining the enemy along its length, without leading the enemy outside the country. When he goes to fight the maidens, I can't get into Akchahan's flame and go to him, he goes.

Dostan's maintenance includes six neck son of Allayar, one daughter, the expulsion of Gulayim's daughter from the island of "Mewali," the murder of forty girls, participation in hostilities, inability to fall in love with the shameful intentions of the guys in love with Gulayim, the attack of the Gulayim tribe on Sarkop during a mountain with their daughters, conquer the fortress, disagree with Nadirsha in Khorezm region of Gulayim, pursuing grain, the country, having met the rebellious Arslan, they met the people and Surta. The accession of Gulayim and Arslan, their soldier's, the war against Nadirsha. The liberation of Khorezm in from the Zulmi king Nodirsha ends with the peaceful life of the people.

"Krymkyz" is the most valuable work of Karakalpak folklore in other people. It reflects the best wishes of the people of the Karakalpak people over several centuries of the struggle against external enemies.

Dostan's positive heroes - Gulayim, Arslon, Utbaskan, Sarvinoz, Altay - are fighting for the happiness of the people, ideas their mind, strength, desire to serve the people. Patriotic and deep humanistic feelings in them are aimed at a solid and fruitful peaceful existence. They are not only simple and sincere, but also truthful, courageous, loving their sincere work and struggle in their attitude to better courage, brotherhood, virtue and wisdom. All of the above were of the national character of the Karakalpak people.

Thus, with examples of the oral creativity of the Karakalpak people as terms, people, love for the country, homeland, its freedom, service to the Motherland idea freedom and prosperity of the ideology of national independence, national well-being, peace of the country, prosperity of the Motherland idea of the same type. In addition, the basis of ideas of social cooperation, interethnic harmony in our national ideology is such idea as harmony in the ranks of people, a united struggle against the enemy, the preservation of the country's internal unity in the fight against external enemies.

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Issue Article

Muslima Niyazova
International Islamic Academy of Uzbekistan
3nd-year student of Islamic Studies, Faculty of Islamic Studies
nmusli@icloud.com

O'ktam Bazarbayevich Palvanov
International Islamic Academy of Uzbekistan
The scientific supervisor
Ph.D. Lecturer

THE RULE OF NŪR AL-DĪN MAHMŪD ZANGĪ DURING A'LĀ AL-DĪN AL-KASĀNĪ'S LIFETIME

Abstract: *Nūruddīn Mahmūd Zangī, a prominent representative of the Zangī dynasty that ruled parts of the Levant and Upper Mesopotamia on behalf of the Seljuk Empire in the twelfth and thirteenth century, was one of the kings who fought for the prosperity of the homeland. In addition to fighting with external enemies, he was also kind to scholars for the development of islamic knowledge in his country and the prosperity of his people.*

Key words: *Imad al-Dīn Zangī, Sayf al-Dīn al-Ghāzī, Nusrat al-Dīn Amīr Amīrān, Jamal al-Dīn Muhammad al-Isfahānī, Salah al-Dīn al-Yāghsiyānī, the Ash'ariyyah, Ibn al-Athīr, A'lā al-Dīn al-Kasānī.*

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Introduction

The Zangī dynasty was a dynasty of Oghuz Turkic origin [1:191], which ruled parts of the Levant and Upper Mesopotamia on behalf of the Seljuk Empire and eventually seized control of Egypt in 1169 [2:269-280].

In 1174 the Zangī state extended from Tripoli to Hamadan and from Yemen to Sivas. [3:51-61]. The dynasty was founded by Imaduddīn Zangī (480-541/1085-1146) and he controlled the dynasty during 521-541/1128-1146.

His emirate included most of the Levant, and he confronted the second crusade, then he annexed Egypt to his emirate and overthrew the Fātimiys and the sermon of the Abbāsīs caliph in Egypt after the Fātimiys stopped it for a long time, and stopped their doctrine. Thus, he paved the way for Salāhuddīn al-Ayyūbī to fight the Crusaders and conquer Jerusalem after uniting Egypt and the Levant into one state. His reign was marked by justice and the establishment of the Sunni sect in the Levant and Egypt. He also spread education and health in his emirates, and some consider him the sixth of the Rightly Guided Caliphs.

Imaduddīn Zangī left four male children: Sayfuddīn al-Ghāzī, who was the eldest, then Nūruddīn Mahmūd, who is the just king, Nusratuddīn Amīr Amīrān, and the father of kings Qutbuddīn Mawdūd, who was the youngest [4:76]. These brothers had no difficulty in retaining their father's property thanks to the help of two of Imaduddīn Zangī's loyal men: Jamaluddīn Muhammad al-Isfahānī, chief of the court, and Salahuddīn al-Yāghsiyānī, Amīr Hājib. The first was in the campaign that besieged Ja'bar Castle, so he played a major role in preserving the country and keeping it in the hands of the sons of Zangī.

Nūruddīn Mahmūd Zangī was born in 511/1118 and he is the second son of Imaduddīn Zangī bin Āq Sanqur, after Sayfuddīn al-Ghāzī. He is called the *"al-Malik al-Ādil"* (the Just King), and among his other titles are *"Nāsir al-amīr al-mu'minīn"* (the Supporter of the Faithful), *"Taqiyyu al-Mulūk"* (the Pious of

Kings), "*Laith al-Islām"* (the Lion of Islam), *"Al-Xalīfatu al-Rāshīd"* (the Rightly Guided Caliph, and he was also called *"Nūruddīn al-Shahīd"* (The martyr Nūruddīn) despite his death due to illness. He ruled Aleppo after the death of his father, and he gradually expanded his emirate, and he also inherited from his father the project to fight the Crusaders.

He was raised in his childhood under the care and supervision of his father, and that his father used to give him precedence over his brothers and saw in him fantasies of decency [5:329].

Some modern historians believe that he was Ash'arī,[6:248] while others believe that he was a follower of the Qadiriyya method, and others believe that he reconciled between the Qadiriyya and the Ash'ariyyah. Nūruddīn Mahmūd Zangī ruled Aleppo, while Sayfuddīn al-Ghāzī ruled Mosul. The boundary between the two brothers' possessions was the Khābūr River in the Syrian Jazīrah [7:163].

In 541/1146, Nūruddīn married Ismatuddīn Khatūn, the daughter of the Atabīk Muin al-Din Anar, the ruler of Damascus, and wrote the contract in Damascus on Shawwal, 23. He fathered two sons and a daughter, the eldest, Ismail, who took power after him, and the youngest, Ahmed, died as a child [7:164].

Nūruddīn was accompanied by his father when he was killed in the year 541/1146 at Ja'bar Castle, while his older brother, Sayfuddīn al-Ghāzī, was residing in Shahrazūr. Nūruddīn took his father's ring, and went with his army to Aleppo, and he became king of it and its dependencies in Rabī' al-Akhīr, 541/1146. Nūruddīn Zangī was thirty years old at that time.

The Zangī's state was thus divided into two parts, the first in Mosul, the Jazīrah, and Homs, to which Sayfuddīn al-Ghāzī hurried to establish his rule there, and the second in Aleppo and its vicinity under the command of Nūruddīn. Their brother, Nusratuddīn Amīr Amīrān, ruled the Harran region, subordinate to Nūruddīn, while the fourth brother, Qutbuddīn Mawdūd, remained under the auspices of Sayfuddīn al-Ghāzī [4:264].

Nūruddīn's first attempt to control Damascus was in the year 545/1150 when he sent his forces there, but their march was delayed due to rain, so Mujīruddīn hurried to seek help from the Crusaders, so Nūruddīn decided to break the siege on Damascus after Mujīruddīn promised him that he would engrave his name on the money and that he would pray for him in the mosques [8:151,193]. The Crusaders took control of Ashkelon in the year 548/1153, and wrested it from the hands of the Fātimiys, and Damascus objected between Nūruddīn and it.

So Nūruddīn commissioned Najmuddīn Ayyūb, who was the ruler of Baalbek at the time, to win some leaders in Damascus and spread rumors within Damascus and incite the people to revolt, until Najmuddīn went with some of his guards to meet Mujīruddīn, who in turn feared the interview and refused it. So Nūruddīn considered it an insult, so he marched his army to Damascus [8:151,193]. Mujīruddīn begged the Crusaders to give them money and hand over Baalbek to them, so they gathered and rallied. In the meantime, Nūruddīn went to Damascus in Muharram in the year 549/1154 and wrote a group of its events and promised them from themselves. When he arrived, they rebelled against Mujīruddīn and took refuge in the castle.

And he opened one of the gates of Damascus, which is an eastern gate, so that Nūruddīn entered through it, and Nūruddīn took possession of the city and besieged Mujir al-Din in the citadel and gave him a fief from the city of Homs. Mujīruddīn and the king of Nūruddīn went to the castle. Then he compensated him for Homs with Basil, and he did not satisfy her, so he moved to Baghdad and built a house there and resided there until he died [9:114].

He continued his military campaigns and went to Shayzar. Shayzar has a strategic location, as it lies on the trade lines between Aleppo, Damascus, and Homs. Despite this, Nūruddīn did not try to annex it militarily. But an earthquake occurred in the year 552/1152, which destroyed the fort and killed most of the saved Munqidh family [10:424]. Nūruddīn feared that Shayzar would fall under the hands of the Crusaders, so he stood with his army on the outskirts of the country and repaired the damaged walls. Thus, some of the princes of Nūruddīn entered it, and then he entered it and owned it after all of the Munqidh family who had gathered at its prince died in an invitation, and the earthquake hit them together, so the castle fell on them, and none of them escaped.

After Nūruddīn succeeded in annexing Damascus, al-Dahhak ibn Jandal al-Biqā'i, who was subordinate to the Emirate of Damascus, declared his disobedience and rebellion against Nūruddīn. But Nūruddīn did not take any action against him for fear that he would seek the help of the Crusaders. He waited three years until a truce agreement was concluded with the Crusaders. In the year 552/1154, Nūruddīn annexed Baalbek without any resistance from al-Dahhak [11:419].

Nūruddīn set his sights on fighting the Crusaders since the beginning of his taking over the Emirate of Aleppo and ending all the strongholds of the Crusaders in the Levant, and his goal was to liberate Jerusalem, so he ordered the construction of a pulpit in the year 563/1168 to put it in Al-Aqsa Mosque after he had conquered the city. This pulpit was made in Damascus. By skilled artisans from Damascus and Aleppo. This pulpit was actually moved to Jerusalem after its conquest by Salāhuddīn al-Ayyūbī, and this pulpit was later called the Saladin pulpit.

As for the Crusaders, they were determined to go to Homs after defeating Nūruddīn, because it is the closest country to them. Then they were sent to Nūruddīn in the truce, but he did not respond to it, so they left at the fort someone to protect it, and returned to their country and dispersed [7:494].

Moreover the Nūruddīn's army tended to seize Al-Munaitra Fort in the year 561/1165 and the abundant spoils, and in the following year 562/1166 the areas surrounding the Kurd Fort were attacked, and the spoils were plundered, as well as the Sāfitā Fort, which is one of the impregnable forts of the Emirate, and a clash took place between the army of Nūruddīn, and the army of the Emirate of Tripoli 565/1169 in what was known as the Battle of Labwa, and after two years, that is, in the year 567 AH / 1171 AD, he continued the same policy, and forces were sent to besiege the fortress of Arqa and seized it in the same year [7:495].

A part from that Nūruddīn Mahmūd Zangī used to say: "We charge (police) the Sharī'a and carry out its orders." He also said: "We protect the road from a thief and a bandit, and the harm that occurs from them is close. Should we not preserve the religion and prevent from it what contradicts it, which is the principle".

In a word, he is considered to be a skilled king who fought for the benefit of his people and spent all his efforts for the development of the state along with politics. Ibn Kathīr said about him: "He was based in his rulings with good treatment and following the purified Sharī'a and he showed in his country the Sunnah and put an end to heresy".

He ordered the abolition of all taxes and excises that were taken from the people, when his minister Muwaffaquddīn Khālid bin Muhammad bin Nasr al-Qaysarānī the poet told him that he had seen in a dream as if he was washing the clothes of King Nūruddīn, so he ordered him to write leaflets setting out the excises and taxes for the country, and he said to him: "This interpret your vision." And he wrote to the people so that they would be free from what was taken from them, and he said to them: "This was only spent fighting your infidel enemies and defending your country, your women, and your children." And he wrote to the rest of his kingdoms and the countries of his authority, and he commanded the preachers to seek permission from the merchants for him.

Ibn al-Athīr says about him in the justice of Nūruddīn: "I have read the biographies of the previous kings, and I did not see among them after the Rightly Guided Caliphs and U'mar bin A'bdu al-A'zīz better than his biography, and no more investigation than him for justice"[12:903].

Ibn al-Athīr described Nūruddīn as: "He used to investigate justice and do justice to the oppressed from the oppressor, whoever he was, the strong and the weak in his view were equal in the right, so he used to hear the complaint of the oppressed and take charge of exposing it himself, and he did not entrust that to an eyebrow or a prince, so it is no crime that his mention spread in the East the earth and its west".

Nūruddīn used to pray a lot at night, and it was told about him that he prays and lengthens the prayer, and he has wirds during the day, so if the night comes and he prays the evening prayer, he sleeps, then he wakes up in the middle of the night, and he rises to ablution and prayer and calls to tomorrow, then he appears to ride and performs the tasks of the state.

Damascus was the capital and the most important city during the reign of Nūruddīn Zangi, and he was concerned with the construction of many buildings that bear his name, such as:

- In Damascus, he established legal education schools and focused his attention on the Hanafī and Shāfī'i schools of thought. He also established schools for the Mālikī and Hanbalī schools;
- He built the first and largest house of hadith and entrusted its affairs to the great Hafiz Ibn A'sakir;
- He built orphanages for graduating scholars and allocated many endowments for them;
- He built many hospitals in all cities.
- He restored the Damascus Wall and reinforced it with numerous and impregnable towers, including the "Nūruddīn Tower" south of Jābiya Gate.
- He built a public bath, which became known as the Nūruddīn bath, and it is located in the al-Bazūriyyah area in Damascus, and its building is considered one of the oldest baths in the city.

Furthermore, Nūruddīn had a good attitude towards the scholars from his country and abroad, and earned their respect. In particular, A'lāuddīn al-Kasānī, who was sent as an ambassador to Aleppo in 541-543/1146-1148, had a warm attitude. He persuaded him to stay in Damascus. A'lāuddīn al-Kasānī was sent as an envoy to the ruler of Aleppo, Nuruddīn Zangī where he lived for the rest of his life. During Kasānī's stay in Aleppo, the government was ruled by the Zangī and Ayyubis, and the country's scientific environment was stable. For more than 40 years, Kasānī served as "Chairman of the U'lama'" in the state of Zangī. He soon gained great fame here and was appointed chief teacher of the Halavīyyah Madrasah, built by Nuriddīn Zangī at the request of local jurists. Before this, ar-Razī as-Sarakhsī was the head teacher of the madrasa, and the Taliban were not satisfied with the pronunciation errors due to his fluency. Al-Kasānī's respect for the madrasah is so great that even in the absence of the teacher, a place of worship was set up for him, and he sat around him from the time he arrived until he got up. Al-Kasānī was a high-level scholar and a sharp-witted orator there.

In addition to fighting with external enemies, he was also kind to scientists for the development of science in his country and the prosperity of his people.

Nūruddīn Mahmūd Zangī fell in early 569/1174 with angina pectoris, and he remained on his sickbed for eleven days, to die on Shawwal 11, 569/May 15, 1174, when he was fifty-nine years old, [8:151,173] and was buried in the house in which he was confined in Damascus Citadel, then his body was transferred to the Nūriyyah School located in the Khawāsīn market in Damascus.

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Issue Article

Artur Alexandrovich Blagorodov
Institute of Service and Entrepreneurship (branch) DSTU
master

Maria Lvovna Vilisova
Institute of Service and Entrepreneurship (branch) DSTU
Candidate of Economics, Associate Professor

Vladimir Timofeevich Prokhorov
Institute of Service and Entrepreneurship (branch) DSTU
Doctor of Technical Sciences, Professor, Shakhty, Russia
DSTU (in Rostov-on-Don, Russia)

Galina Yurievna Volkova
LLC TsPOSN «Orthomoda»
Doctor of Economics, Professor
Moscow, Russia

THE SIGNIFICANCE OF THE ASSORTMENT CONCEPT IN THE FORM OF A SYSTEM OF INDICATORS FOR ASSESSING THE EFFICIENCY OF INNOVATIVE TECHNOLOGICAL PROCESSES FOR THE PRODUCTION OF DEMANDED PRODUCTS

Abstract: *In the article, the authors consider the goals and objectives of the assortment concept, which is expressed in the form of a system of indicators that characterize the capabilities of innovative technological processes for the production of priority and demanded products at Russian enterprises, including those in the regions of the Southern Federal District and the North Caucasus Federal District. The authors justifiably believe that the production of competitive products can be expedient and promising for manufacturers to have a stable financial position, and a steady demand for manufactured products will provide enterprises with profitability and profit, which guarantees them stable technical and economic indicators.*

Key words: *priority, assortment policy, assortment concept, innovation, manufacturability, sales volume, revenue, profitability, profit, price niche, price elasticity, financial position, technical and economic indicators, demand, demand, competitiveness.*

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Introduction

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What is the output for the manufacturer? There is only one way out – direct presence on the market and significant investments in the education and education of consumers. It is difficult to overcome such a program alone, but it is absolutely realistic to unite. A domestic manufacturer has everything necessary to oust a speculator from the retail market.

He has professional experience, qualified personnel, scientific and technical support, a certain confidence of buyers returning to the former, pre-reform priorities, which are actively exploited by unscrupulous manufacturers and to which the authorities, who do not know how to return to the Soviet experience, shyly close their eyes. The trend of returning interest is gaining stability. Of course, clothes and shoes are not sausage and vodka, or chocolate and confectionery products of natural origin.

At the same time, all products have something in common – the responsibility of the manufacturer.

The euphoria of the nineties has passed, democratic freedom, which turned into arbitrariness in production and in the market, sobered the souls of Russians intoxicated by the will. Having become disillusioned with democratic reforms, they are no longer so impressed with many others in the new way of life. Now is just the historical moment when light industry can win back its place in the market. Only we need to act in a new way. To revise and remake yourself. To abandon the former one-dimensional view of the consumer as an "object" of relations.

In the old days, the consumer was completely dependent on the manufacturer. The market was closed, the choice was dictated, i.e., in essence, the buyer did not have it. Today, consumers have more opportunities to choose, while satisfying their taste.

The manufacturer needs to take advantage of the new configuration of relations in the market.

The modern Russian market satisfies the tastes of the consumer only from the outside, in fact, our market has rather awakened, stimulated the taste of the buyer with its diversity. The real choice of the mass buyer, for whom this market is designed, is still small.

Objectively, high-quality, high-tech products are still inaccessible to a Russian of average capabilities. He admires them as if they were models, or gets annoyed, realizing that all this is not for him. Chinese consumer goods have lost their appeal. Turkey and Eastern European producers are forced to adapt to WTO requirements. The goods they offer grow in price, but not in quality. The price is also helped to grow by the disproportionately increasing costs of carriers.

In the new market conditions that have awakened the consumer's taste, it is important to try to take control of it. We are not talking about changing the economic strategy based on quality management. We pay attention to the component of this strategy. In the West, a version is gaining strength, the essence of which is that the economy is becoming "smart", the stage of systemic quality management is moving into a new stage – the quality of education. If this is the case, then attention to the education of consumer taste fully fits into the strategy of economic policy.

The consumer lives in a specific environment, forming a certain symbiosis with it. Access to consumer creation is effective both in the direct application and through the life environment. So far, the manufacturer is sluggish, and the market is vigorously fighting for the buyer, presenting him in their marketing research as a kind of ready-made, statistical subject who needs to be lured with an offer. The real battle for the buyer is ahead when the manufacturer understands the advantages of a full-format program of consumer education and upbringing. The consumer needs to be prepared, then he will go through the market labyrinths by a given route.

Belief in the miraculous power of advertising is a dangerous companion for the manufacturer. Advertising was presented as the engine of progress by advertisers themselves and the market, which is not responsible for anything in principle. Exclusive goods are advertised extremely rarely – they have a regular consumer with a well-formed taste and exclusive purchasing potential. Such a buyer is simply notified, they arrange presentations of the collection for him, not sparing much money.

Advertising is touted to an ill-mannered and unenlightened buyer, whose credulity to advertising is inversely proportional to the state of knowledge and taste. The mass consumer is sacrificed to advertising and market arbitrariness. Responsible producers, instead of complaining about fate, it's time to turn around and enter into spiritual contact with the consumer. It is naive to hope that he will get out of the fake decorations of the market and advertising on his own. But even if the consumer manages to overcome the ingenious inventions of the market, by that time domestic producers will become relic phenomena and the revival of the activities of national producers will lose public relevance.

There is no doubt that the task of educating your buyer is costly, troublesome, unexplored, difficult, requiring a lot of patience, the ability to appreciate slow, uneven progress towards the goal, to fight with everyone who declared themselves and their occupation a supranational, democratic phenomenon and makes a name for themselves on speculation in the field of universal values.

No one disputes the priority of universal interests, and the need for all-round protection of national security is indisputable. And without modern production of basic necessities for a person, national security cannot be ensured. So domestic producers will have to solve a dilemma: either simultaneously with the development of production to produce their own consumer, or continue to moan about the mess that is happening and push themselves to the market periphery closer to the edge of the market and their end.

The revival of the domestic light industry will force the market situation to change, the market will have to react, because its interests are conditioned by the dynamics of consumer demand.

Then it will be easier for many to breathe: producers, consumers – will feel the national taste and intermediaries.

Work with the buyer should be built systematically in the format of the target program. Its main sections, presumably, will be, along with the improvement of production and assortment, educational and interactive communication with a potential buyer.

Having closely engaged in educating the taste of the consumer, manufacturers themselves will have to improve their qualifications. No wonder they say that the best way to educate yourself is to try to teach others. It can be argued that the manufacturer has considerable reserves of improvement in all areas of activity. The first steps should be taken towards the consumer. It is impossible to trust the consumer to the "concerns" of an intermediary and it is unreasonable to leave the consumer alone with himself – he should be taken as a colleague, accomplices and seriously prepare for the perception of the product.

Main part

Taking into account the methodological foundations of the competitiveness of an enterprise, a methodology for assessing and analyzing the competitiveness of an enterprise based on the theory of interested parties is proposed.

Stage 1. Selection of indicators for assessing the factors of enterprise competitiveness. For each factor, it is possible to determine a system of indicators based on the analysis of scientific literature, that is, taking into account the analysis of the system of indicators for assessing the competitive potential of an enterprise, we can propose the following system of indicators for assessing internal factors of the competitiveness of an enterprise.

Stage 2. Determining the significance of the indicators of the overall assessment of the competitiveness of each factor of the competitive potential is formed by the enterprise itself, but the sum of the indicators does not exceed 100%.

Stage 3. Calculation of dimensionless estimates of enterprise competitiveness indicators. To convert dimensional estimates of indicators into dimensionless ones, it is proposed to use the index method. Indices of dimensionless indicators are determined for positive indicators that have a positive trend - growth (for example, the profitability of sales, labor productivity) and for negative indicators that have a positive trend - a decrease (for example, depreciation of fixed assets, excess stock of finished products in stock compared to the norm, staff turnover rate), taken mainly from the indicators that form the cost of production, namely:

Qi– dimensionless (index) assessment of the i-th indicator enterprise competitiveness;

X_i - the value of the i-th dimensional indicator of the assessment enterprise competitiveness;

Xmax- the maximum value of the i-th dimensional indicator for assessing the competitiveness of the enterprise,

Xmin- the minimum value of the i-th dimensional indicator for assessing the competitiveness of the enterprise.

Stage 4. Assessment of the competitiveness of the goods. It is carried out for light industry goods according to their demand in the domestic market.

Stage 5. Calculation of the general indicator of the competitiveness of the enterprise. The quantitative assessment of the competitiveness of an enterprise is determined from the following indicators, namely:

TOP- assessment of the competitiveness of the enterprise in percent,

ai- the significance of the i-th indicator of competitiveness in percent,

qi– index (dimensionless) assessment of the i-th indicator of competitiveness,

M- the number of indicators for assessing the competitiveness of the enterprise.

The values of the assessment of the competitiveness of an enterprise can theoretically vary from 0 to 100.

For the qualitative characteristics of the obtained assessments of competitiveness, a scale for assessing the quality level is required. In economic practice, the principle of building scales with equal steps, progressive and regressive scales are used. Progressive and regressive scales are most often used for material incentives. We believe that the scale with an equal step is the most appropriate, since it:

firstly, it corresponds to the solution of a practical problem (specification of the qualitative level of competitiveness);

secondly, it is easy to build and use.

The scale step is defined as 100 (maximum score): 4 (number of levels) = 25. Another step value is also possible, which is determined by the goals and objectives that the enterprise itself forms. As a result of the calculation, the following scale for assessing the qualitative level of the enterprise's competitiveness was obtained (Table 1).

Table 1. Scale for assessing the quality level of enterprise competitiveness

Percentage score	Quality level
0 to 24.9	very low
from 25.0 to 49.9	short

from 50.0 to 74.9	average
from 75.0 to 100	high

The economic meaning of the obtained generalized assessment of competitiveness is that, on the one hand, it shows the degree of satisfaction with the product, and, on the other hand, the degree of use of the competitive potential of the enterprise itself.

The proposed methodology for assessing and analyzing the competitiveness of an enterprise, unlike the existing ones, has the following features, namely:

firstly, it takes into account the specifics of the "light industry" industry;

secondly, it reduces the subjective factor in the assessment;

thirdly, it allows for an in-depth analysis, thanks to the proposed directions and indicators for analyzing the competitiveness of enterprises.

The following aspects can be singled out as the main unique aspects of the formation of a competitive advantage of an enterprise based on the theory of interested parties, namely:

- creation and permanent expansion of the database of interested parties;
- formation of the necessary innovation base (computers, peripheral devices and software);
- organizing the activities of the unit and individual managers for managing relationships with stakeholders;
- development and adjustment of plans for interaction with key stakeholders, taking into account their business and personal characteristics;
- regular audit of the activities of stakeholder relationship managers in the context of evaluating the following indicators: the number of meetings, the number of prepared commercial proposals, the number of contracts concluded, the dynamics of the volume of product deliveries per stakeholder participant;
- regular marketing research in the process of implementing the developed activities with the participation of stakeholders in order to identify changes in the structure and nature of the preferences of stakeholders.

Thus, the above aspects, with the proper level of their development, can allow light industry enterprises to form a unique competitive advantage - a system of effective relationships between stakeholders.

Conditionally variable costs (total variable costs of a unit of production) (Cusl. per.unit) are defined as:

Zconv. before. \u003d Spol - (5 st.s.pol. + 6 st.s.pol. + 7 st.s.pol. + 8 st.s.pol. + 9 st.s.pol.); (rub.) (5)

1) Semi-fixed costs (total fixed costs of production and units of production) (Cons. constant units) are defined as:

Zconv. stay..ed = Spol. - (1 st.s.pol. + 2 st.s.pol. + 3 st.s.pol. + 4 st.s.pol.); (rub.) (6)

These calculations show that with 100% of the sale of men's and women's shoes in the specified period of time, not only the costs of production and sale of products are covered, but there is also a profit in the amount of 3697.4 thousand rubles. This indicates the effective operation of the enterprise, as well as the correct marketing and assortment policy. Product profitability is 14.9%. As proof of their proposals, the authors confirmed the results of the calculation of technical and economic indicators using the software developed by them, which allowed them to choose production volumes that would guarantee the manufacturer an economic effect, in which the complex indicator of efficiency (K) estimating it would tend to its maximum value, and namely, to unity.

For example, the name of the enterprise "Kotofey" is the production of children's shoes in the city of Yegorievsk. Saying “Kotofey”, you can provoke an association with fast movement, and children love to run, they need high-quality and strong shoes. Another example is the name of the enterprise MEXX. There are no bright associations, but the name is modern and concise. It is in good agreement with the positioning of the enterprise - clothing for young people with an ideal combination of "style, price and quality".

It is necessary to note the huge number of names that exploit the Latin alphabet when writing their names. It seems to us that the roots of this phenomenon lie in the statements - the legacy of the Soviet era: "There is no fashion in Russia!", "Domestic means bad." Accordingly, domestic enterprises that were the first to enter the post-Soviet market were forced to disguise themselves as foreign manufacturers. Gregory, Gloria Jeans, Climona, Vereteno, Festival, ZARINA are numerous examples of this strategy when choosing a company name.

The fourth way is the company logo. The purpose of a logo in the fashion industry is instant brand recognition. A logo is a symbolism that replaces a name or is its graphic interpretation. Interestingly, in the fashion world, the logo has also become part of the design of clothes and shoes.

The logo serves as an identification mark for the uninitiated crowd, which, by these letters, will find out how much this or that item cost. This is a cheat sheet for those who cannot define the silhouette of Dolce and Gabann, Christian Dior or Ferre. With a general trend towards more and more visualization, type graphics are all kinds of indicators. Signs and labels - began to play an increasingly important role. A logo, as an image that replaces text, becomes an ideal solution if you need to combine decorativeness and

informativeness.

In addition to its primary function - the trademark - it plays a decorative role. This is a natural result of the interweaving of the fashion industry and advertising. Here are the reasons, namely:

the first - industrial - fashion for the text as a decorative element;

the second is the fashion for democracy in clothes, i.e. crisis of recognition of styles, binding of an object to a specific brand;

the third is about advertising. This is a shift in the boundaries of "expensive - cheap": it is the design of the product, and not the quality of the materials used or the amount of manual labor that increasingly determines consumer value. A glut of advertising information makes it possible for logos to become an element of decor.

The logo becomes more and more figurative, emotional. And you can play with images, placing it where it was previously unthinkable. Thus, today, buyers of fashionable shoes have been made advertising carriers of brands due to the universal logo typing.

The main thing is the correspondence of the emotions caused by the advertising of the product, the brand image and the design of the products themselves.

After all, the promotion of the subject should be specific, simple, understandable and bright, i.e. advertising. At the same time, carry a readable emotionally colored image. So, you can't do without a logo. The verbal logo of the enterprise - the name, inscribed in a certain way, is its most frequently used attribute, which forms the first emotional attachment to the image of the company in the consumer's mind. A certain way of depicting a verbal logo becomes an original, original sign of the enterprise.

Another important direction in the company's activities to promote its brand is the design in the retail environment. Here are the following requirements, namely:

- convenience of location for a specific target audience (Via Corso - boutique street in Milan; and il Duomo square with La Rinaschente department store - both conveniently located in the center of Milan, but the consumer of these retail spaces is different). As mentioned above, a similar community of shoe boutiques will be created in Russia on the basis of domestic enterprises. The need for such a base exists in the Southern Federal District and the North Caucasus Federal District - this will allow organizing a market for consumers in these regions;
- adherence to the concept of presenting the image of the product, i.e. well-thought-out principles for presenting the properties of a product that meet the expected motivation for its choice by the consumer;
- figuratively, the target solution of the environment should be oriented to the type of consumer. It should be possible to try on shoes, get advice from the seller;
- the environment should be conducive to stay and provoke interest in products. Pleasant music can sound in the store, each visitor should be given a booklet with shoe brands;
- according to a figurative decision, the environment should be raised above the ordinary, create a feeling of “event”, “chosenness”, “fullness of possibilities” or “accessibility”. The enterprise can introduce a system of discounts to re-attract consumers;
- support an additional range of services included in the circle of pastime and cultural interests of the consumer. The buyer can be offered a cream for the newly purchased shoes as a gift or another clothing accessory with the logo of the manufacturer's company.

Consumers in the market do not act as a monolithic community. When buying shoes, they are guided, first of all, by the type of shoes and the price.

For example, when choosing women's boots, the buyer takes into account the seasonality of shoes, their age characteristics and type of work, while the appearance of the shoes will be important features: compliance with the fashion direction, color, top and bottom materials, as well as the constructive solution of the model. Buyers will also prefer the brand name. It is this offer of shoes to the consumer in specialized stores or departments that will provoke an increase in sales in conditions of unstable demand. And if the seller, having well-thought-out principles of presenting the advantageous properties of each design of women's boots, and guessing the mood and capabilities of the buyer on their motivated questions when choosing a model, can realize this very desire, then in any case the buyer will leave satisfied that his interests are fully satisfied ,

Elderly people love comfort and coziness. Both the seller and the buyer - a representative of the fair half - of course, will turn their attention to the model, if it is pleasant to wear it in a snowy winter, since it must be made of soft pile leather - velor and have a molded sole with a large tread, as it will very comfortable and will provide them with comfort in any period of wearing it.. At the same time, it should be affordable.

Business women, whose age is over 45 and up to 45, and constantly in a bustle, of course, will give preference to models made of natural materials, low heels, discreet accessories, creating comfort for the wearer in their daily life, while emphasizing their image and social status.

The appearance of fashionistas or high school girls in the salon or in a special company store will immediately attract the attention of the salon seller, who will want to offer them only the original model with extra high heels with patch straps, decorated with holnitens and fixed in the upper and lower parts of the shaft. The fashionista will be delighted that she got

what she wanted, and the high school student will be satisfied with the purchase also because she is sure that she will surprise her friends with this purchase, and for her this is the most important argument in favor of the purchase.

It is always easy for the seller if a “socialite” appears in the store, as she always prefers only new products or exclusive models. These ambitions of hers can be satisfied by the model both due to originality and due to the constructive solution, as well as due to the selected materials and decorations in the manufacture of this very model.

For girls who love rigor, but at the same time originality, the seller will definitely offer a model that successfully combines materials of two colors and textures, and the details, perforated, draped on the shaft, give it unusualness.

And the price should not “bite” very much, which is also an important argument in favor of the purchase. These fantasies of ours, peeped in life and very effectively working on demand, are justified and have the right to be, since the ability to present your products, work with your consumer, a competent marketing approach form the popularity of this boutique, store or salon with buyers and provide them with a steady consumer demand . Ultimately, well-thought-out principles for presenting the properties of the product, choosing your consumer, the correct design of boutiques and their windows - all this will make it possible to have a significant impact on the effective results of their work. The same fully applies to the children's assortment.

Figure 1. - Assortment of children's shoes

Achieving the highest possible profitability is ensured through constant monitoring of economic indicators and timely decision-making to adjust the range.

The stability of marketing indicators is ensured, first of all, due to constant monitoring of the market situation and timely response to their changes, and even better - the adoption of proactive actions.

In addition, it is important that there are not too many product names. For the majority of Russian enterprises, the main reserve for optimizing the assortment is still based on a significant reduction in the assortment range. Too large assortment has a bad effect on economic indicators - there are many positions that, in terms of sales, cannot even break even. As a result, the overall profitability falls sharply. Only the exclusion of unprofitable and low-profit items from the assortment can give the company an increase in overall profitability by 30-50%.

In addition, a large assortment disperses the strength of the company, makes it difficult to correctly offer goods to customers (even sales department employees are not always able to explain the difference between one or another position or name), and disperses the attention of end consumers.

Here it would be appropriate to recall the psychology of human perception of information. The reality is that the average person is able to perceive no more than 5-7 (rarely up to 9) semantic constructs at a time. Thus, a person, making a choice, first selects these same 5-7 options based on the same number of criteria. If the seller offers more selection criteria, the buyer begins to experience discomfort and independently weeds out criteria that are insignificant, from his point of view. The same thing happens when choosing the actual product. Now imagine what happens if a person has a hundred practically indistinguishable (for him) goods in front of him, and he needs to buy one. People in such a situation behave as follows: they either refuse to buy at all, because they are not able to compare such a number of options, or prefer what they have already taken (or what seems familiar). There is another category of people (about 7%), lovers of new products, who, on the contrary, will choose something that they have not tried yet.

Thus, from the point of view of the buyer (to ensure a calm choice from perceptible options), the assortment should consist of no more than 5-7 groups of 5-7 items, i.e. the entire assortment from the point of view of perception should optimally consist of 25 - 50 items. If there are objectively more names, then the only way out is an additional classification.

It is generally accepted that the buyer needs a wide range. This widest range is often referred to even as a competitive advantage. But in reality, it turns out that for a manufacturer, a wide range of products is hundreds of product items, and for a consumer, 7 items are already more than enough.

Thus, the consumer does not need a wide assortment at all, but the variety necessary for him.

If an enterprise professes a wide assortment approach, then it is enough to analyze sales, look at statistics to make sure that sales leaders are 5–10, 15% at most of the items, all other positions are sold very little, the demand for them is small, although the costs differ little from costs by top sellers. It turns out a situation where several items "feed" the entire wide range of the enterprise. And this is far from always justified from the point of view of ensuring the completeness of the assortment (a favorite argument of sellers), that is, the availability of various items to cover the maximum possible options for customer needs. In practice, it turns out that completeness is fully ensured, even if the existing assortment is halved or even tripled. The main thing in this case is to correctly classify all goods and ensure that so that the assortment includes goods from each possible group of this classification. Moreover, the more grounds for classification the company can identify, the more balanced the decision will be. So, the classification of goods can be according to the needs of customers, according to the functional purpose of the goods, according to the benefits for the company.

Of particular importance in such a situation is the role played by certain positions of the assortment. For this, products can be classified into the following groups, namely:

- ❖ the main group of goods (which bring the main profit and are in the growth stage);
- ❖ supporting group of goods (products that stabilize sales revenue and are in the stage of maturity);
- ❖ strategic group of goods (goods designed to provide future profits to the enterprise);
- ❖ tactical group of goods (products designed to stimulate sales of the main product group and are in the stage of growth and maturity);
- ❖ product group under development (products that are not present on the market, but ready to enter the market);
- ❖ goods leaving the market (which do not make a profit and they need to be removed from production, that is, they should be taken out of the market).

The results of the solution of the first example are shown in Table 2.

Table 2.

Index	Value, rub.
1. Sales proceeds	951008
2. Variable costs	798132

3. Fixed costs	66420
4. Amount of coverage, 1-2	152876
5. Coverage ratio, 4/1	0.16
6. Threshold revenue, 3/5	415125
7. Margin of safety, %, (1-6)/1*100	56.35
8. Profit	86456
9. Production Lever Effect, 4/8	1.77

Let's see how the profit of the enterprise will change if the production of the unprofitable basic model is abandoned. In this case, the company's revenue will be reduced by the amount of revenue from the sale of this type of product and its volume will be 753,508 rubles. (951008-197500). At the same time, the total costs of the enterprise will also be reduced by the amount of variable costs necessary for the production and sale of shoes of the main model. This value will be equal to 164290 rubles. Since fixed costs do not depend on the amount of revenue, the refusal to manufacture shoes of the main model will not affect their total value.

Thus, the total costs of the enterprise without the production of the main model of footwear will amount to 633842 rubles. (798132-164290). And the organization will not receive a loss in the course of its activities (753508-633842 = 119666 rubles). Using the method of calculating the average size of the coverage allows you to decide on the feasibility of further production of footwear of the main model.

The average coverage for both shoe models is positive. If the enterprise reduces the production of shoes of the main model by one unit, it will lose 66.6 rubles. from covering fixed costs. The exclusion from production of the entire volume of production of this model of footwear will lead to losses in the amount of 33,300 rubles. (500·66.6). From the foregoing, we can conclude that the shoes of the main model should be kept in stock.

Thus, it is not always advisable to make a decision based only on the value of total costs and profit per unit of output, because in the end result the enterprise may lose profit. Now consider the situation (example 2), when an enterprise plans to release a new product - a supporting shoe model in the amount of 1700 pairs at a price of 467.40 rubles. for 1 pair. However, the production facilities of this organization are suitable for the production of only 4,000 pairs of shoes. And if it is going to start producing shoes of a strategic model, the company will have to abandon the production of 500 pairs of other models. The question arises: should new products be introduced into the assortment, and if so, which products should be reduced? The average value of variable costs for a new type of product is 375.34 rubles. Then the average coverage is 92, 06 rub. (467.40 - 375.34). The results of solving the second example are shown in (Table 3).

Table 3.

Index	Value, rub.
1) Sales proceeds	1745588
2) Variable costs	1520478
3) Fixed costs	66420
4) Amount of coverage, 1-2	225110
5) Coverage ratio, 4/1	0.13
6) Threshold revenue, 3/5	515046
7) Margin of safety,%, (1-6)/1*100	70.49
8) Profit	158690
9) Production Lever Effect, 4/8	1.42

The given data show that as a result of updating the assortment, the position of the enterprise has improved:

– profit increased from 86456 rubles. up to 158690 rubles;

– safety margin increased by 14.14% (70.49 - 56.35);

– the effect of the production leverage decreased by 0.35 points (from 1.77 to 1.42).

Insert two

Thus, in a variable costing system, profit is shown as a function of sales volume, while in a full distribution system it depends on both production and sales. Both considered systems have their advantages and disadvantages.

So, for example, when the volume of production exceeds the volume of sales, a higher profit will be shown in the full cost allocation system. In the case when the volume of sales exceeds the volume of production, a higher profit will be reflected in the calculation of the cost price at variable costs. However, when calculating the cost of variable costs, information for making a decision can be obtained with a much smaller number of calculations. The

choice is up to the management of the enterprise in order to ensure a stable position for its enterprise in the face of unstable demand with timely and effective actions. This is especially important in the manufacture of the entire range of children's shoes and when working with customers - with mothers and children, creating all the conditions for them to meet their interests.

In a market economy, in order to survive in a constantly changing economic environment, shoe companies need to focus on the target audience, namely:

- an increase in the amount of profit as a result of an increase in the volume of sales of products;
- reducing its cost;
- improving the quality of products.

In order to get the desired profit in conditions where the prices for shoes and production volumes are dictated by the market, the company always faces a choice - what products and how much to produce in terms of the cost of its manufacture and taking into account the solvency of potential buyers. The presence of high-quality, competitive footwear is a necessary prerequisite for the highly efficient functioning of a shoe enterprise. An important criterion for the competitiveness of footwear in the market is its cost with its corresponding quality and the purchasing power of the population.

The main criterion for the viability and profitability of an enterprise is profit; in order to increase losses, it is first necessary to reduce the cost of footwear. Changes in the total cost, which includes all costs for the production and sale of shoes, depend on the ratio of cost changes for each costing item. An important factor influencing the level of costs for the production of shoes is the change in the assortment and the technological process.

Choosing a technology that can effectively achieve unlabeled goals in the face of fierce competition will ensure that the developed range of shoes will be chosen by the buyer and allow the company to maximize profits. To solve this problem, it is necessary to make the most extensive use of progressive methods of manufacturing shoes, which will ensure the manufacture of the entire range of high-quality shoes with different profitability of certain types of shoes to meet the demand of various groups of the population.

The advertising claim: "the customer is always right" is a lie! Only the legal order, which determines the nature of relations in the goods market, is always right. These relations themselves are built depending on the interpretation of the quality of goods and the correspondence of quality to price.

For the fifth year in a row, the Italian footwear market sector has experienced a significant decline in production volumes.

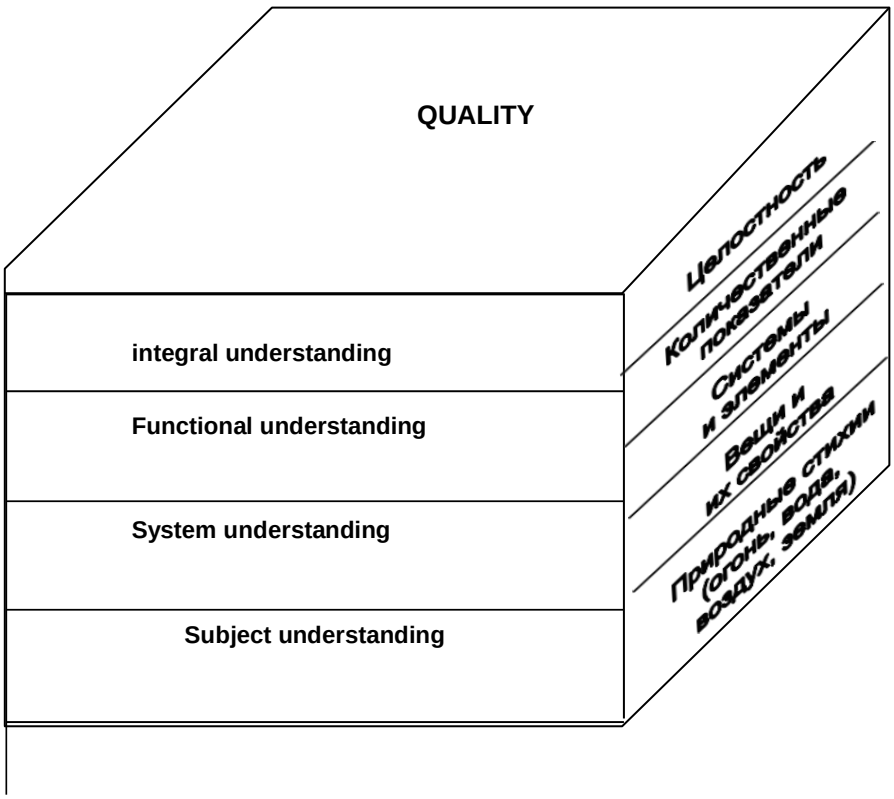

Figure 2. Stages of understanding the category "quality"

Table 4. Basic understanding of the essence of the category of quality

Understanding the essence	Founders	Definition of quality
1	2	3
substrate	Characteristic of ancient cultures, with a primitive idea of the structure of the world and the physical laws of nature	The properties or qualities of any object were considered from the point of view of conformity,similarity to the main elements
subject	Aristotle considered quality in fact in the following meanings: as a species difference of essence; characterization of entity states; property of a thing	Each item has specific properties that may be subject to change.
Systemic	The idea of a systematic understanding of quality belongs to the German philosopher G. Hegel, the founder of dialectics as a method of cognition. In his philosophical system, the initial logical moments of being are quality, quantity and measure. F. Engels came up with the idea that in nature and society there are not qualities, but things and phenomena that have qualities, and, moreover, infinitely many qualities. Marxist dialectics considered the qualitative certainty of objects and phenomena from the point of view of social practice, taking into account the possibility of their knowledge and use by society. V.S. Solovyov widely uses the concept of qualitative certainty in the analysis of moral and philosophical problems.L.P. Karsavin connected the presence of the subject, his consciousness and self-consciousness with the obligatory nature of his quality.	The quality of each object is formed as a result of the interaction of its diverse properties and, thus, is also a system category
functional	A functional understanding of quality became possible on the basis of: the use of statistical methods of management based on control charts proposed by W. Shewhart;the idea of defect-freeness as the main indicator of product quality proposed by D. Juran; application of methods for constructing cause-and-effect diagrams to solve the problem of quality and the idea of ensuring the highest level of quality by making optimal decisions at the design stage of products proposed by K. Ishikawa	Definition of quality through quantitative indicators
Integral	A. Feigenbaum as the founder of the TQM concept. E. Deming, who formulated 14 principles. Yu.V. Kryanev and M.A. Kuznetsov as the authors of the integral model of quality	Awareness of quality as a multidimensional socio-economic category that applies to all spheres of lifehuman

Table 5. Stages of evolution of activities in the field of quality

Stage	Production scale	Stage characteristic	Applied Quality Control Elements
1	2	3	4
I stage Individual form of organization of work on quality	Homemade handicraft production, as well as modern self-employment	The worker is usually directly interactswith the buyer, independently resolves issues related to the creation, manufacture and sale of products, and at the same time bears full responsibility for the quality	Almost all elements of the modern process are presentquality management: identification of needs; determining what the product should be and by what means it will be achieved; establishing the sequence and accuracy of performing operations for the manufacture of intended products; periodic control of their work; making corrective actions
II stage Workshop form of organization of work on quality	Manufactory organization of production	This form is already characterized by the separation of the control function and responsibility for quality.	The following elements are present: organization of production; quality control at the stages of production; establishing the accuracy and sequence of operations; postoperative control; making corrective actions
Stage III Industrial stage	Deepening the concentration and specialization of production	It is typical to strengthen the role and importance of such production links as design, testing, technological preparation for the production of new products.	A closer and clearer interaction of all factors affecting the quality of products both within the enterprise and outside it is being formed: strengthening contacts with suppliers raw materials, materials and component parts; an increasing number of services and participants are involved in quality work; quality issues are discussed in the shops with workers, controllers, foremen; quality issue becomes recognized by senior management
IV stage System organization of work on quality	Development of production and the growing role of product quality	This stage is characterized by the formation of quality systems both in Russia and abroad.	Activities aimed at improving quality have objectively been transformed into one of the functions of organizing and managing production.

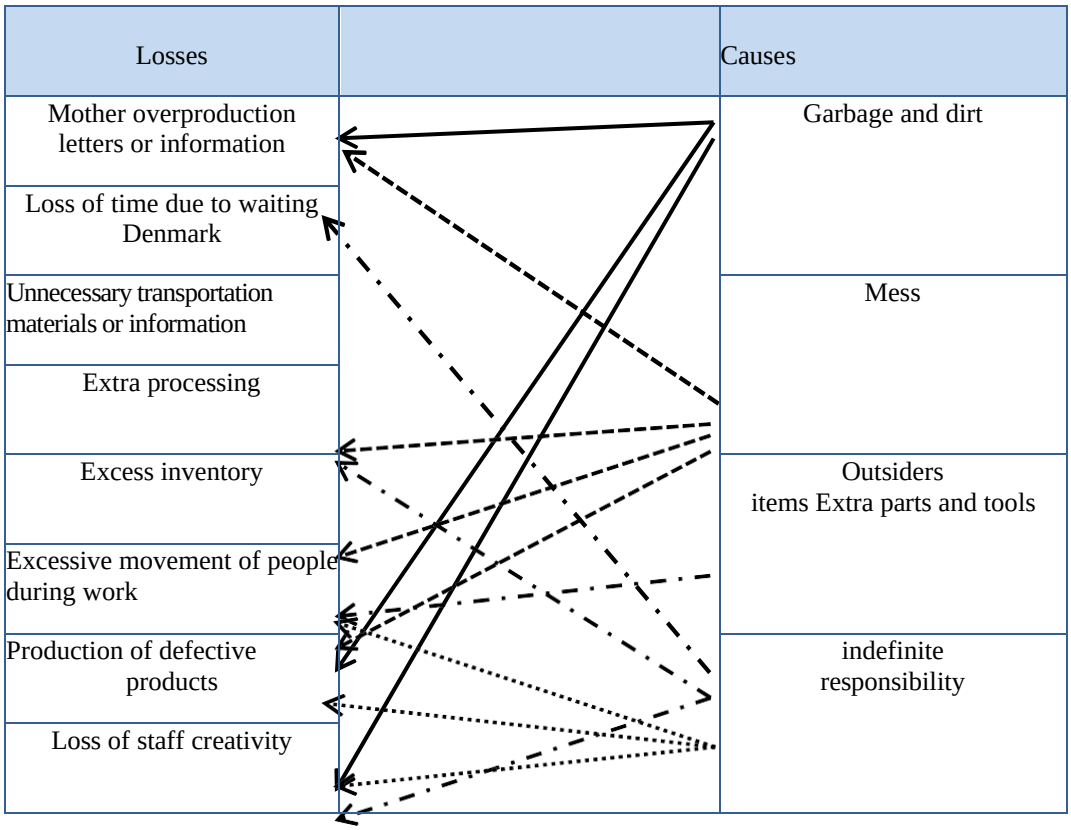

Figure 3. Types of production losses and their causes

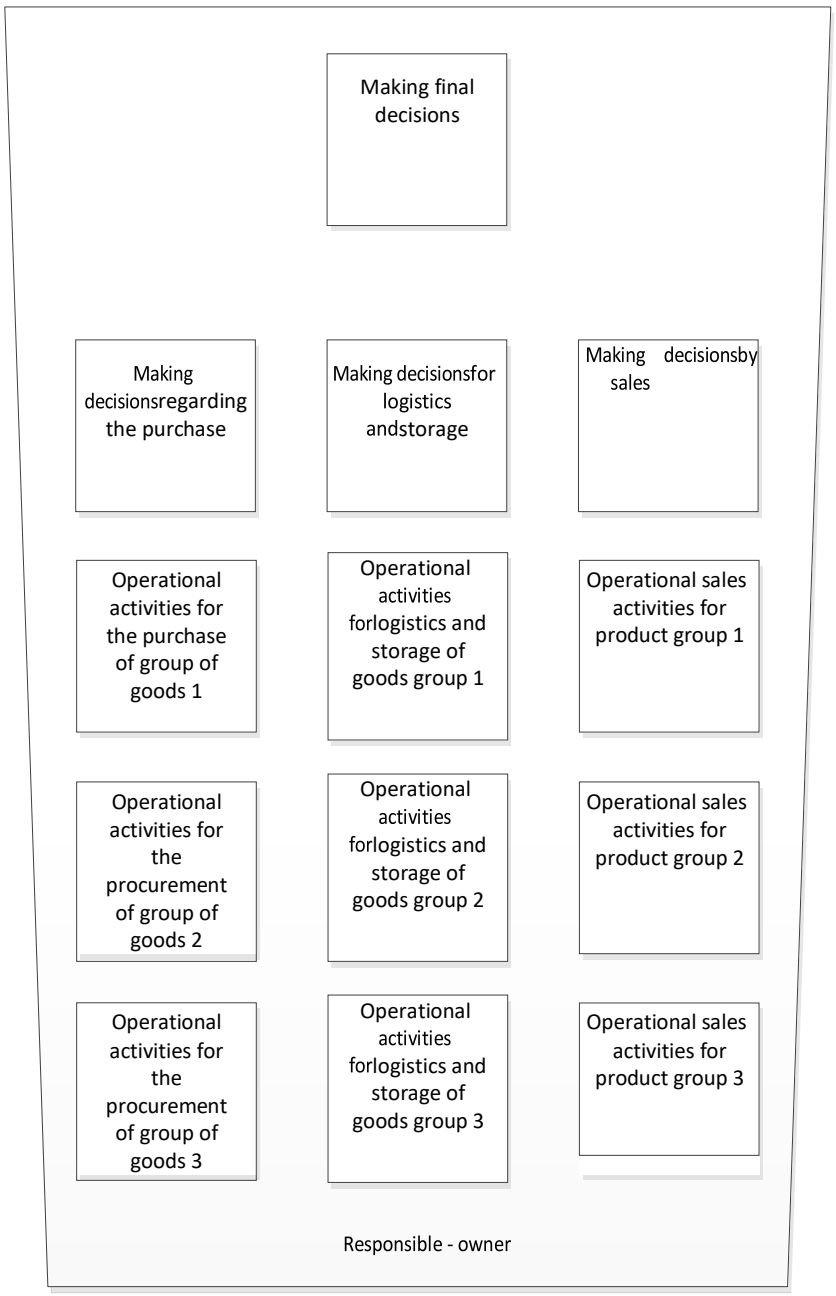

Figure 4. - the origin of the company

Conclusion

Production in the transition from an industrial to a post-industrial society of mass consumption is conceived as a function of the market.

This is possible only if the heads of enterprises implement modern technological solutions formed on the basis of the use of multifunctional and universal equipment, and at the same time it is necessary to remember that the innovative technological solution itself should not be expensive, that is, on the one hand, provide the enterprise with sustainable technical and economic indicators and guaranteeing their demand not only in the sales markets of the regions of the Southern Federal District and the North Caucasus Federal District, but in the regions of other districts of Russia and be a priority for foreign consumers. But on the other hand, consumers should have the choice to compare the price niche for the proposed products with analogues of foreign firms, and always have priority. This will be possible in the formation of production.

The use of progressive shoe manufacturing methods will allow an enterprise in market conditions to receive such an amount of profit that will allow it not only to firmly maintain its position in the sales market for its shoes, but also to ensure the dynamic development of its production in a competitive environment, this is especially important in the

manufacture of the entire product range children's shoes.

The most serious contradiction, apparently, remains the divergence in the images of the quality of the product by the manufacturer and the consumer. The special importance of a different approach to the quality of the manufacturer and consumer is natural. They are the main subjects of the system of economic relations, they have a common goal - the product. The former produce it, the latter consume it, but they have different motives due to different positions in the system and the culture of perceiving the goal.

And most importantly, I would like to emphasize once again that all this will become a reality if one main condition is met, namely, if domestic footwear is produced with high quality and taking into account the interests of this very consumer.

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Issue Article

Gulnara Palbekovna Kallibekova
Karakalpak State University
An assistant
Doctor of philosophy in philology. PhD

Nursuliw Nurbekova
Karakalpak State University
Master student

STEPS OF IMPLEMENTING THE RELATIONSHIP JOURNALISM WITH SOCIETY IN OUR NATIONAL JOURNALISM

Abstract: *In the article, there is a special word about the importance of public relations in the information service business. In our national journalism, special articles such as press, topics, and columns of journalistic public relations are reported.*

Key words: *informational service, public relations, information, analysis, synthesis, journalist, text, photo fact, infographic.*

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Introduction

Today, it is the duty of the representatives of the mass media to satisfy the public's demand for information, to deliver reliable news to them. The rapidly deteriorating times demanded clarity and operativeness from the journalists in reporting the events of our current life. The reason is that we typed our news at one time, and when we published it in other news media, this information became unavailable. When we analyze the information of five years from now and the present time, we can see that some kind of news will appear on the newspaper pages after a week.

In the operation of the information service, public relations are very important. In our national journalism, special articles such as editorials, topics, and rubrics for journalistic public relations have been taken. Especially we can mention scientific works of these scientists: F. Muminov, T. Eshbekov [1], Sh. Miralimov [2], A. Meliboyev [3], M. Xudayqulov [4], B. Alimov [5], T. Masharipova [6], G. Kallibekova [7].

Now, collecting, distributing and analyzing information became easier with the development of the Internet. The provision of such valuable information, after the deadline, lowered the level of satisfaction of the public's demand for information. Informational transmission required a certain time to on the radio and TV. The news printed on them was sent to the audience from going several steps. The scenes and interviews taken by the camera operators are pre-recorded, then the journalist's text and photo sequences are edited behind the scenes. After this process, the word of the respondent, the text behind the frame, and all the words of the TV broadcast are found to be compatible.

In the end, such news is broadcast with delay. It was needed to find the decision to such kind of problem. The Internet has entered our daily life, and official and unofficial sites and blogs have appeared on social networks, and information has started to be disseminated to the public. In the field of journalism, there is a need for a good manager of Internet networks, and new personnel for operational work in the field of information.

Information services have been introduced in the government and governmental organizations. It was created by the legal authorities, which consisted of several rules and orders.

1. The declaration which was adopted on May 5, 2014 "About the effectiveness of all administrative bodies of state power" (Appendix 1) in the Republic of Uzbekistan has strengthened the information service of legal guardians.

2. In the declaration № 125 "About the measures for the establishment and implementation of information services of all economic management bodies of the Republic of Uzbekistan" (Appendix 2), the effective decision-making system of the state and economy management is clarified, and the system of information acquisition is included. The duties of all responsible persons for reporting and disclosure of the report received by the society were determined.

3. The declaration of the President of the Republic of Uzbekistan on June 27, 2019 "About the supplementary measures for the development of information services, and government bodies" (Appendix 3) was an important decision to develop.

It is necessary to be a good journalist with a sharp mind. It is necessary to have a thorough knowledge during television broadcasting and radio broadcasting. Subjects related to the journalism of the theoretical experts of the research, scientific articles, textbooks, tutorials, research services are publishing houses, television, radio, internet journalism, photojournalism. The mission of the information service is to collect and distribute information, as well as establish public relations with the government. In Karaqalpakistan we investigated the Telegram social network of Ajiniyaz State Pedagogical Institute, which was the first in the field of special education for information service workers. The official Telegram channel of this higher education site launched its work on August 24, 2018 under the name ndpi.uz, through the link http://t.me/nmpi1934. When we enter the Telegram channel, we can see that the logo of the institute is placed on it, and our ancestor Ajiniyaz's great thought like "A man is a beauty of this world" is given. Basic information related to the institute was published in pdf version in the title "Ajiniyaz NMPI "Ilim hám jámiyet" magazine, issue 2, 2018". When we paid attention to the mediametrics we can see 2 likes, 2 downloads, and 959 people read it. So, the 2nd video posted on YouTube was published under the title "Video. NMPI young people call all people". This information was seen on channel by 1035 members, and we can see that it was sent to Telegram at 11:32. The next information posted on YouTube is an infographic with information about NMPI, which was published at 11:33 and was read by 1012 channel members.

In the course of learning about the business of the information service, we can see how difficult it is to create a list of requirements for them. Because at first it is necessary to be a person who is a master of creation, professional, a good photograph and able to work well with computer equipment, especially computer equipment and the latest programs in high schools. So, in the course of its work, to work with fully operation increases the reputation of every information service. The information service business does not choose time, it is necessary to deliver the necessary information to its audience in a timely manner. For example: We can see the information "The evaluation system will change in higher education institution from the new year" published on August 30, 2018 on the NDPI.UZ telegram channel of the Nukus State Pedagogical Institute named after Ajiniyaz at 20:17. It is possible that the work of this information service is not only in the cabinet but also continues outside the workplace. If 1016 people have read and familiarized themselves with this news sent to the audience of the higher education institution, we can see 1 person who disliked it. We can also see announcements related to the institute in the Telegram branch. One of them was an announcement published on September 1, 2018, titled "Today, September 1, at 3:00 p.m. and 7:05 p.m., in Jaslar TV will show about NMPI" at 1:48 p.m. But the lack of photos and videos with this announcement may make channel owners a little bored. It would be even more interesting if the information service would take photos of the process and then print it out and prepare the text. On September 4th, on the website of the higher institute, posted on the Telegram channel, an article was published under the heading "The Institute had a meeting with the parents of the new year of study" with photos. We did not find an opportunity to analyze public information on the institute's website. The reason is that this information was removed from the site, and all the photos can be displayed by clicking on this link. Example: "New school year has started. At Nukus state pedagogical institute, the report on the “Science Day” was given”. The rector of the institute B. Utemuratov, Academician J. Bazarbayev and a girl with a key who was accepted as a student were given the photos, which was posted on the Telegram channel and the website of the institute. Apart from this, we can also see the words with neologism. For example: we can find the words such as: "Word edu 2023", "Sof expo Samarkand" and "Komplaens qadaǵalaw", published on May 11.

T. Eshbekov, one of the special contributors to the national journalism of the reporting service, explains: Transparency and freedom of speech are important in the politics of a legitimate democratic state. They are calculated data on the development of any state. Even in our country, which has made a lot of progress on the path of unbiased treatment, the place of transparency is important in the various branches of modern management, in various areas and in the spiritual world of the heads of institutions. The marriage proved that democracy cannot be achieved

without providing transparency. Clarity is the key to the development of the state. Just as democracy has a legal status, it is necessary to create regular policies to ensure transparency, and it should be reflected in the state policy.

Transparency is important in the information service business. At the same time, the information service serves to provide transparency in the service of the organisation. It opens the door of the organisation so that the employees of the mass media can get the information related to the service of the organisation at any time. In addition, learning the attitude of the mass media better than the organisation gains the reputation of the relevant institutions.

In particular, transparency also has legal implications. In order for it to manifest itself in the operation, it is necessary to provide information services and show more activity [1].

In conclusion, collecting, distributing information and analyzing news, events about the development of Internet networks became easier. That's why it is necessary to take operational action in the work of information service employees.

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Issue Article

Abboskhon Saydaliev
International Islamic Academy of Uzbekistan
1st year master student of History (Islamic Civilization)
tel: (99) 813-75-14

THE ORGANIZATION OF THE RELIGIOUS ADMINISTRATION OF THE MUSLIMS OF CENTRAL ASIA AND KAZAKHSTAN AND ITS PLACE IN THE DEVELOPMENT OF ISLAMIC VALUES

Abstract: *This article reveals the religious and educational scene of the Republic of Uzbekistan during the Soviet Union. Information is provided about the activities of the Central Asian and Kazakh Muslim Religious Administration, which was established as a result of the change in the Soviet Union's attitude to religion.*

Key words: *Eshon Bobokhan ibn Abdulmajidkhan, Ziyovuddin Khan ibn Eshon Bobokhan, Shamsuddin Khan Bobokhanov, Sheikh Muhammad Sadir Muhammad Yusuf, Mir Arab, journal, imam-khatib, madrasa, religious administration of Muslims of Central Asia and Kazakhstan, judge.*

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Introduction

World War II, which caused the untimely and unjust deaths of millions of people, was fought by two atheistic ideologies: fascists and socialists, and other powerful countries allied with them. In such a difficult situation, the leader of the USSR, Stalin, began to think about "introducing" religion into the life of society. By 1943, Joseph Stalin's attitude toward religion had "changed." The reason for this was to raise the will of the Soviet people, to increase their love for the motherland, and in this way to win the war. Religious freedoms began to be granted to Muslims in the eastern regions of the Soviet state. Funerals were held for those who died in the war. This was an impossible situation in the atheistic Soviet state.

Main part.

Eshon Bobokhan ibn Abdulmajidkhan, one of the great clerics living in Hazrat Imam region of Tashkent, took this opportunity to appeal to the Chairman of the Council of People's Commissars of the UZSSR, Yoldosh Okhunboboyev, and ask him to make a decision to open a religious office. Y. Okhunbobayov directly applied to Stalin and received permission to open a religious office. At this time, Eshon Bobokhan went to Moscow and was received by I.Stalin. I.Stalin instructs Eshon Bobokhan to convene a congress of Muslim scholars and offer them practical help to win the war. On October 15-20, 1943, a congress will be held in the Hazrat Imam region of Tashkent. At the end of this congress, which was attended by 160 people, the religious office of the Muslims of Central Asia and Kazakhstan was formed and the people were addressed:

"Dear Muslim brothers, our dear children! We, the citizens of five countries, are addressing you on behalf of all Muslims. Unite to fight like real lions against the fascist gazandas! Protect every corner of the homeland and strengthen your ranks with discipline! Ask God to help us win over the enemy as soon as possible!"[13, p.27] As a result of this appeal, the Muslims of Uzbekistan collected 128,000 rubles, 93 tons of consumer goods, 90 head of cattle and many other clothes to the Red Army.

Due to the opening of the religious office, the Mir Arab Madrasah[1] was reopened in 1945 and started its activities in 1946. Here are a few words about the madrasa: The madrasa was built in the 17th century (1630-1636) by Shaykh Abdullah Yamani with the support of Shaybani Ubaydulokhan. He trained thousands of students from that time until the beginning of the 20th century. However, as a result of the infamous policy of the atheistic state, this center of knowledge, famous in the Islamic world, was also closed.

It is worth noting that this knowledge was a means for the development of many well-known scholars. Mufti Eshon Bobokhan, Mufti Eshon Ziyovuddin Khan and the famous scholars of our time Abdugani Abdullayev, Mukhtorjon Abdullayev, Yusufkhan Shokirov, Muhammad Sadiq Muhammad Yusuf, Fazil Qori Sobirov, Rahmatulla Qori Obidov, Abdurashid Qori Bahromov, Usmonkhan Alimov, Abdulg Afur Razzokov and most of the imams in our republic were also honored students of the madrasa.

In 1943, a special "Literniy train" went from Tashkent to Moscow. The two compartments in it are distinguished scientists of Uzbekistan, Qori Niyazov[2]“, A. Alimov, the Central Asian judge Eshon Bobokhan ibn Abdulmajidkhan and several other notable people, who took part in a special decision on the establishment of the Academy of Sciences of the Uzbek SSR and the religious supervision of the Muslims of Central Asia and Kazakhstan. were invited secretly[3]. The wonderful trip of this delegation ended successfully and the desired result was achieved. However, it would be a mistake to understand that the permission to open religious control for Muslims in the region means that the Shura government has given up the policy of tyranny. There were social, political and other specific reasons why religious control was allowed to be organized in the difficult conditions during the war years when the country was in turmoil and famine, citizens lived under the slogan "everything is for the front". On the other hand, the actions of self-sacrificing clerics to restore the national and religious values of the people, the proposal to establish a religious office was a great courage. Sometimes there are cases of biased assessment of the activities of the religious control during the government of the Soviets. However, in such a difficult situation, how many poor children and intellectuals were persecuted, and the efforts of religious scholars to preserve the values and heritage of the holy religion of Islam in a difficult situation are certainly commendable. Islam Karimov, the First President of the Republic of Uzbekistan: "Our people, despite all the storms and storms of history, have preserved their national identity and ancient values, and reached today's modern times unscathed. the sense of spiritual courage, without a doubt, is having a decisive influence" [12, p.171]. he wrote. Religious control has been recognized as an official religious and independent organization with great influence, which unites Muslims in a large region, then in the republic, and provides them with spiritual guidance and patronage for nearly seventy years. Today, under the management of Office of Muslims of Uzbekistan, more than two thousand and one hundred mosques, nine secondary and special Islamic educational institutions, the Tashkent Islamic Institute named after Imam Bukhari and the Imam Bukhari International Center are operating as an organization in the Republic of Uzbekistan, encouraging the Muslims of Uzbekistan to do good deeds. is directing.

In such a situation, it is more appropriate to assess that the interference with the religious beliefs of the country's citizens will be reduced in order for different nationalities and peoples to support each other, to use, to help each other and, most importantly, not to be defeated spiritually by the enemy in the same difficult situation that befell the allied republics in 1941-1945. . In these processes, by 1941, Islam was given an official status in the former Union, and four religious departments were established on the territory of the country, and a management system was created.

In 1942, during a period of consecutive defeats of the Union troops, the influential publication of its time "Trud" published an appeal by Mufti Abdurahman Rasuli (1881-1950), chairman of the Central Religious Department of Muslims, entitled "Regarding the German-Nazi invasion of Muslim clerics and believers." In this appeal, a verse from the Holy Qur'an was also quoted: "We, Islamic scholars and religious figures living in the Soviet Union, call upon all Muslims to protect the Motherland and the Muslim world in unity from German Germany and their allies." The appeal will be translated into the languages of all Muslim nations living in the territory of the Soviet Union and distributed in places where the population lives.

On March 3, 1943, another telegram of mufti Abdurakhman Rasuli about collecting funds for the formation of a tank column was published in "Izvestiya" newspaper. In response, I.Stalin will write a letter of gratitude to all those who contributed to this good work.

At this time, scholars led by Sheikh Eshon Bobokhan ibn Abdulmajidkhan in Uzbekistan strongly called on the public to help the front and set a practical example. Explaining the rules of Islam such as zakat [3, p.4541] to the public, [4, p.314] the

[1] Tashmuhammad Qori Niyazov (1897-1970) is a distinguished scientist of Uzbekistan. The first president of the Academy of Sciences of the USSR.

[3] On the establishment of the religious office of the Muslims of Central Asia and Kazakhstan, see: Russia-Srednya Asia, (p.172-174). Babadjanov, SADUM

antiquity, and various ideas that are harmful to Islam have also been challenged. These actions showed that the Muslims of the country were united with other peoples in the fight against fascism, both at the front and behind the front. On July 12, 1943, under the leadership of Eshon Bobokhan ibn Abdulmajidkhan, scholars such as Abdurazzak Eshon Muhammadalimov, Akromkhan Tazikhanov, Mulla Sadiq Islamov, Safogori Aliqoriyev, who well understood the necessity of the times and the nature of the conditions that arose with their intelligence, sent to the Presidium of the Supreme Soviet of the USSR Central Asia and They send a letter with the initiative of establishing a religious management body for the Muslims of Kazakhstan [14, p.46]. On July 31, 1943, the decision of the Presidium of the Supreme Soviet of the USSR No. 55 allowed the creation of a special office that would act as a management center for the activities of the Muslims of Central Asia and Kazakhstan. On May 19, 1944, the Council for Religious Affairs was established under the USSR Central Committee. Its task was to strengthen the relationship between government bodies and leaders of religious organizations, as well as believers of Islam, and control their activities. The documents reflecting the investigations of I. V. Polyansky (1878-1956), the chairman of the Council on Religious Affairs under the Council of Ministers of the USSR, regarding the religious situation in Uzbekistan and the activities of scholars are kept in the Central State Archives of the Republic of Uzbekistan. In 1943, according to the decision of the Presidium of the Supreme Soviet, when the religious management center was allowed to be opened, an organizational commission of the region's Muslims was formed in order to take practical measures to establish religious supervision. The commission is headed by Sheikh Eshon Bobokhan ibn Abdulmajidkhan, Sheikh Abdulgafar Shamsutdinov (Kazakhstan), Sheikh Muhammad Salih Bobokalon (Tajikistan), Sheikh Olimkhontura Shakirkhontora (Kyrgyzstan). A number of prominent religious figures entered under the leadership of Sheikh Anna Eshon (Turkmenistan). Sheikh Abdurakhman Rasuliy, the chairman of the religious administration of the European part of the former Union and Siberian Muslims, Sheikh Khalil ar-Rahman Nasriddinov, the imam of the Moscow mosque, Sheikh Qiyamiddin Qadiri, the imam of the Kazan mosque, and other distinguished scholars will be invited to the founding meeting in Tashkent.

Ziyavuddin Khan ibn Eshan Babakhan was appointed as the responsible secretary of the founding committee. According to the decision of this assembly, on October 15, 1943, the 1st congress was convened in Tashkent[4], in the house of Eshon Bobokhan, located on Bejinsky street (now Ziyovuddin Bobokhanov) street. More than 160 representatives from the five sister republics took part in it. According to Amirsaidkhan Usmonkhojayev, 160 delegates participated [8, p.93]. At the congress, a decision on the establishment of a new religious center under the name "Religious control of Muslims of Central Asia and Kazakhstan" was adopted, as well as a charter (Regulation) consisting of three sections and 28 articles. In the first section of the charter, the legal basis of the organization of religious control of Muslims of Central Asia and Kazakhstan, and religious organizations subject to its goals were determined. In the second part, tasks of the organization, conditions for appointment and dismissal of imams in mosques, election of 11-member board of directors were introduced. In the third section, the composition of the five-person inspection commission was formed, and the system of conducting inspections was determined. In this way, 85-year-old Sheikh Eshon Bobokhan ibn Abdulmajidkhan was unanimously elected as the chairman of the religious supervision of the Muslims of Central Asia and Kazakhstan, and he was given the title of mufti of the five allied republics in the region. Sheikh Muradhoja Salahi is appointed the deputy chairman of religious supervision, Ziyavuddin Khan ibn Eshan Babakhan as the responsible secretary. Kurultoi decided to establish a representative office of religious supervision headed by a judge in the republic. According to him, Ziyovuddin Khan ibn Eshon Bobokhan (Uzbekistan), Sheikh Abdelgaffar Shamsuddinov (Kazakhstan), Salih Bobokalon (Tajikistan). Olimkhontora Shakir (Kyrgyzstan), Kina Eshon (Turkmenistan) were elected judges of their republics.

The first task of the newly established institution was to provide material and moral support to the front, according to the requirements of the time. The office took the initiative to collect funds for clothes and weapons for soldiers, and to establish a permanent committee that provides support to the families of those who went to the front. Muslims voluntarily donated 280,000 soums from their personal funds to the National Defense Fund. 4 million 117 thousand soums worth of bonds were bought, 63 tons of wheat, 90 thousand heads of cattle were collected, 490 thousand soums worth of goods were transferred to the aid fund for the families of the frontline soldiers. I.Stalin, in his letter to the Mufti of the Central Asia and Kazakhstan Muslim Religious Department, Eshon Bobokhan ibn Abdulmajidkhan, expresses his gratitude to the clerics and all Muslims on behalf of

[4] In the literature on the history of the religious office, it is said that the congress began on October 20. In the "Journal" published by the Religious Control in 1946, it was written that the Charter of the Religious Control was accepted and approved on October 18, 1943 (Journal-1 p-21). This was done on the third, final day of the congress. Accordingly, it is more reasonable to believe that the congress started on October 15.

the Red Army troops for the support provided to the USSR Defense Fund [14, p.46].

Such good deeds as inviting the country to good deeds, serving the people, opening mosques and madrasahs, publishing the Holy Qur'an continued in the subsequent activities of the Religious Control. According to the opinion of most western scholars, among the 4 religious governing bodies established within the Union, the religious control of the Muslims of Central Asia and Kazakhstan was far from bigotry and had a modern style [14, p.46].

From the first years of its establishment, the religious office has also launched its own publishing house to provide scientific and educational resources of interest to Muslims. The report of I. Ibodov, the representative of the Council on Religious Affairs under the Council of People's Commissars of the Uzbek SSR, sent to the center in the fall of 1944, states that there is information about the readiness to publish a journal of religious control and a religious-lunar calendar. stored in the national state archive of Uzbekistan. The publication of the office is called "Journal of religious control of Muslims of Central Asia and Kazakhstan" and is printed at printing house No. 1 in Tashkent. After several printings, the magazine was discontinued for unknown reasons. Currently, the 3-4 issues of this magazine published in 1946 have been preserved. The magazine is written in the Arabic alphabet and contains articles written in Uzbek, Kazakh, and Tatar languages. On the last page of this magazine, under the column "Notice", there is a petition with the title "A request from respected scholars and writers of the pen", which says: "We intend to continue the religious magazine with the permission of our government of religious supervision of the Muslims of Central Asia and Kazakhstan. It is planned to be published once a month and will continue according to the following content: articles related to religion in the constitution of the Shura Republic and their explanation, laws and decisions of the government on religions, orders of the religious control towards Muslims, interpretations of the holy verses, translations of the hadiths, [5, p.77] articles written by means of opinion gathering, opinions expressed in connection with them, religious fatwas, great scholars of religion and science who have reached our country and their services to religion, religion and fun, literary debates, raising the spirit of patriotism in our people, fascism We invite you to contribute by citing religious and literary articles, stories and poems, examples from our own Uzbek, Arabic and Persian literature. It is possible to understand the scope of the magazine's direction and topics from the quoted quote.

The next 5-6 issues of the magazine were published in 1948. In it, information can be obtained from the archived journals about the announcement and conditions of admission to the Barak Khan in Tashkent and Mir Arab madrasas in Bukhara. After a total of 6 issues, the magazine will cease publication and will not be published again for the next 20 years. Attempts to restore it are unsuccessful. Only in the USSR, when L. Brezhnev came to power, the strong anti-religious company was stopped and the office revived the idea of publishing the magazine. After that, starting from 1968, the magazine was published in the Uzbek language under the name "Muslims of the Soviet East" and gradually in the following years in Persian, Dari, Arabic, Russian, French and English languages. Another edition of the religious control, the religious-lunar calendar, was printed in several thousand copies from 1943 and distributed to all republics. 1000 pieces were also sent to the All-Union Organization of Cultural Relations with Foreign Countries for distribution to foreign countries. It was prepared in cooperation with the Institute of Astronomy.

On September 22, 1945, the 1st plenum of religious control of Muslims of Central Asia and Kazakhstan was held. In it, the report of Qazi Ziyovuddin Khan ibn Eshan Bobokhan and Qazi Murodhoja Salihkhojayev on the progress of religious supervision was heard, and a new work plan was drawn up. In this plenum, the proposal to open a madrasa and the issues of regulating the work of mosques were considered. At that time, there were 30 mosques under the religious supervision of the Muslims of Central Asia and Kazakhstan[5], more than a hundred unregistered mosques operated independently.

In 1957, after the death of Sheikh Eshan Bobokhan, at the 3rd Congress of Muslims held in 1957, his son and successor Ziyovuddin Khan ibn Eshon Bobokhan [1, p.176] was elected as the new mufti of the religious administration. Ziyovuddin Khan ibn Eshan Baba Khan became a worthy successor to his father, a good teacher and orderly leader of the country's Muslims, and served many Muslims with his effective work. It was during his administration that the activities of the religious administration expanded, and it operated on a wide scale in various fields. We will briefly touch on these. New copies and translations of the Qur'an were published in the territory of the Soviet Union in 1957 at the suggestion and initiative of Ziyovuddin Khan ibn Eshan Bobokhan. Also, Imam al-Bukhari's [2, p.61] "Al-Jami' al-Sahih" collection of hadiths will be published.

1962 will be a conference of all four Muslim religious authorities on the territory of the Soviet Union. In it, the office of international relations of the Muslim Union is established and Ziyavuddin Khan

[5] These numbers are as of 1960.

ibn Eshan Babakhan is elected as the chairman of the office. Under his leadership, relations between the Muslim organizations of the Soviet Union and the Muslim countries of Asia and Africa were established.

In the following years, the agreement between India and Pakistan was held in Tashkent (1966), the visit of the Chief Sheikh of Al-Azhar University Muhammad al-Fahham to Tashkent (1970), and the establishment of the Tashkent Islamic Institute [11, p.560] named after Imam Bukhari in the building of the Namazgoh Mosque in Tashkent (1971). Ziyavuddin Khan ibn Eshan Baba Khan also had a significant contribution to the works carried out for the peace of people and the development of the scientific potential of Muslims. In 1955-1982, Ziyavuddin Khan ibn Eshan Bobokhan was a member of the World Peace Council [8, p.376], He became a member of the Asian and African Unity Organization, a member of the Islamic Conference, a member of the World Council of Mosques, and a member of several other international organizations and participated in efforts for world peace. The activity of Ziyavuddin Khan ibn Eshan Baba Khan in these processes is proof that Islam is a religion of peace and his life and work. This activity is a living and practical manifestation of pure Islamic enlightenment.

In the fall of 1982, Ziyavuddin Khan ibn Eshan Baba Khan resigned due to ill health and died on December 23 of the same year. At this year's Kurultoy, the son of Ziyovuddin Khan, Shamsiddinkhan Bobokhanov [6, p.202], was elected mufti to the religious office. During his leadership, the material condition of Central Asian mosques improved, Islamic architectural objects [1, p.202] were renovated, a library was opened under the religious administration and enriched with new literature. The era of "Reconstruction" policy, which began during the era of M. Gorbachev, was difficult for the religious administration. This period was remembered with companies such as "Cotton Work" and "Uzbeklar Work". Many people were unjustly punished and suffered injustice. In 1989, Shamsiddin Khan was dismissed from all his positions after being accused by several influential clerics of "selling out to the godless government and being unfit for his duties."

Conclusion.

At the extraordinary congress held in 1989, Sheikh Muhammad Sadiq Muhammad Yusuf was elected as the chairman of the religious administration and mufti. His time also passes against the background of complexities and various big realities, such as the collapse of the Soviet Union. In 1990, the Kazakh judiciary was separated from the religious administration and the Office of Muslims of Kazakhstan was established. With the end of the Soviet Union in 1991, the Central Asia and Kazakhstan Muslim Religious Administration was transformed into the Uzbek Muslim Administration. Religious offices were also established in Turkmenistan, Tajikistan and Kyrgyzstan.

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Issue Article

K. G. Velcheva
Konstantin Preslavsky – University of Shumen
Professor, PhD, Department of Technological and Vocational Education,
Preschool and Primary School Education Faculty of Education,
Bulgaria

A LOOK AT THE INCLUSIVE EDUCATIONAL PROCESS IN THE KINDERGARTEN BEFORE AND AFTER ITS ESTABLISHMENT

Abstract: *One of the most relevant policies at the global level is the expansion and improvement of the quality of early childhood education. Tracking the number of children enrolled in kindergarten and preparatory group is an important indicator for the implementation of education strategies in Bulgaria. The European Union recommends working with all stakeholders by changing parents' attitudes towards educational activities. Therefore, all necessary resources are provided by governments, flexible, timely. The paper analyses a large annual range of kindergarten enrolments and makes a point about the effectiveness of the inclusive process in the country. The conclusions are illustrated.*

Key words: *inclusive education, kindergarten, quality education.*

Language: *English*

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Scopus ASCC: *3304.*

Introduction

It is a well-known fact in science that knowledge of the conjuncture of economic development in a country is fundamental for organizing successful educational policies with efficiency and quality in education [4].

One of the most relevant policies at the global level is the expansion and improvement of the quality of early childhood education. The idea finds expression in an international forum at the global level according to M. Daneva [2, 97]. This is the first of the six goals set at the global world forum in Dakar, Senegal, 26-28 April 2000. The EFA (Education for All) Forum adopted an Action Plan endorsed by the 164 governments present [18].

On the part of the European Union through the European Agency for Special Needs and Inclusive Education, funded from the budgets of EU education ministers, there is a push to work with all stakeholders according to Nikolova, Daneva [13, 321-324]. Priority for this is suggested to be interventions towards their attitudes towards educational activities. The recommendation is to provide all necessary resources, flexible, timely. This is in order to constitute inclusive education systems. Within this discourse is another recommendation from the Council of the EU for governments to achieve more effective inclusive policies through the Early Childhood Inclusive Education Environment Self-Assessment Tool of the same agency [16, 11].

Inclusive education defines the child as a polyaspect personality. Therefore, it can be constituted as an educational system by transforming processes and attitudes towards removing all barriers to the development of the child's personal potential in the educational process. The age of children from 3 to 6 years is important for the process of their socialization because then they form the aspects of their self-concept in correlation with the surrounding world according to J. Doncheva [8, 19]. They have a need for an increasingly wider circle around them to stabilize their self-concept and self-determination, i.e. increase their social competence according to the author. And this happens naturally in kindergarten. Preschool education is perhaps the most important period for children's cognitive-emotional

development, according to V. Kurkchiyska, who believes that the application of approaches, didactic means, forms of teaching and tools should be determined most responsibly and professionally [10, 113-125]. The context of this is to take into account the peculiarities and nature of the educational process with children of this age stage [10, 113-125]. In this regard, we agree with the opinion of V. Kyurkchiyska that a qualitative educational process in children is achieved when their interests and needs are fully covered, which is a matter of pedagogical mastery [11, 22-34]. Therefore, according to the author, it is important to create such ways of interaction with the children's families and the children themselves, so as to provoke interest in attending, and thus to achieve educational goals.

In this regard, tracking the number of children enrolled in kindergarten and preparatory group is an important indicator for the implementation of policies in the country to constitute education as inclusive in order to support educational professionals in a timely manner. According to a recent study by the Trust for Social Initiative (TSA), the abolition of kindergarten fees has been shown to increase attendance by more than 20%. The increase is from a World Bank impact evaluation prepared for TSA's Ready for School project [17].

The introduction in the country of the Pre-School and School Education Act (2017) and the relevant sub-legislative framework should have made a positive difference in the processes of enrolment and drop-out prevention, in particular in infancy and pre-school, compared to the period of integrated education until 2017. According to Daneva, Nikolova, this is possible when dropout risk assessment is carried out and specific factors are monitored, but in our country this is not yet among the inclusion policies [5, 273-277].

We will just mention the main difference between integrated and inclusive education. Education in our country up to and including 2016 is inclusive. It had as its focus transformative processes in children with labelled learning needs until they reach opportunities to be integrated into mainstream school.

The spirit of the post-2017 inclusive legislation is child-centred with all its personal characteristics, according to which the environment is transformed according to M. Daneva [4, 10]. The enrolment in kindergartens is supported by the governmental instrument called the Scoping Mechanism [12]. This is an intensively impacting measure on inclusive policies in our country according to Daneva, Nikolova [6, 69]. Joint field visits are conducted by multidisciplinary teams of experts to focus parents on the importance of enrolling their children in kindergarten or school. We agree with I. Boneva that this corresponds with negative attitudes towards education in general [1, 1031]. According to Daneva, Nikolova, violence against attitudes is perceived as violence to the individual and arouses negative reactions, usually irrational. The effect is negative and resistances are generated [7, 288-295]. Building trust between parents and teachers is of utmost importance. Establishing a close trusting relationship between them, according to M. Daneva is a major factor in the interaction of the educational institution and families [5, 3-7].

Study and analysis

Given the importance of the process of enrolment and retention of children in kindergarten and preparatory group, this study seeks to identify the positive effects of the ongoing transformation of the education system from integrated to inclusive education. The dividing school year is 2016/2017, before and after the introduction of the Preschool and School Education Act and the relevant regulations.

The following data are analysed: number of children enrolled in kindergartens and preparatory groups, group net enrolment ratio. The data are from the National Statistical Institute (NSI). The NSI definition of 'group net enrolment ratio' is: 'The ratio is calculated as a percentage of the number of students in pre-school education in the 3-6 age group to the population in the same age group' [14].

The transition year between the education policy period for integrated education in our country is 2016/2017. The policy period for inclusive education in the country is after 2017 in the period following the introduction of the Pre-School and School Education Act and the Inclusive Education Ordinance, when a large-scale awareness campaign on the need for inclusive education was carried out. By 2016/2017, in integrated education, the number of children enrolled in kindergarten and preschool relative to the number of all children at that age formed a share of 82% on average. There is a difference of at least 4% lower share in the years of implementing inclusive education - Fig. 1 [14].

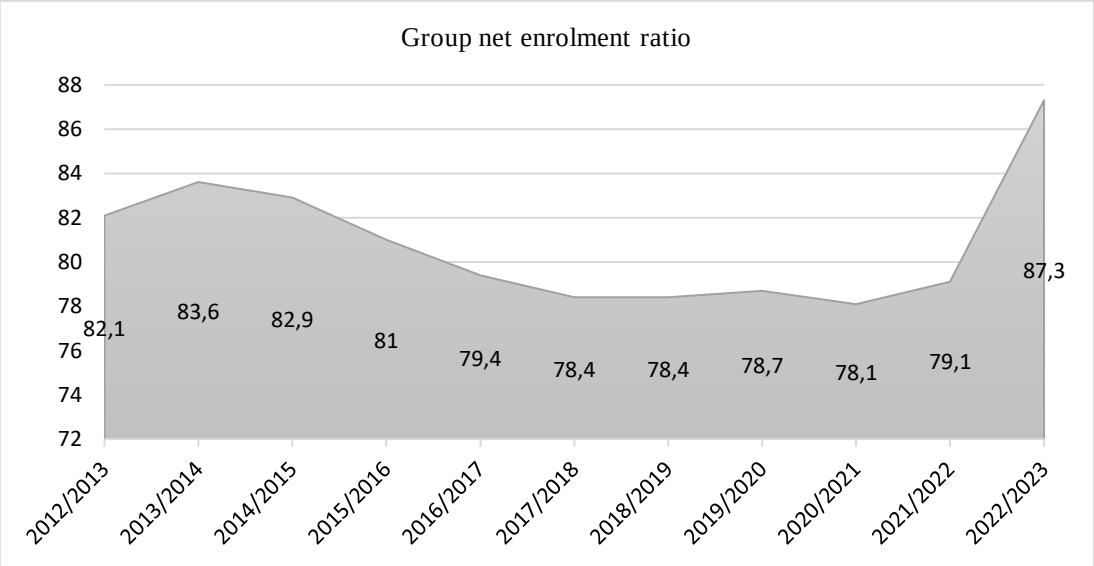

Figure 1. Group net enrolment ratio in kindergartens and preparatory group by year (NSI) [14]

Similarly, the movement of data on the number of children enrolled in kindergartens and preparatory groups in the period after 2017 is examined, as shown in Figure 2 [15].

The data presented shows a significant downward trend that started one year before the introduction of the new legislation. Although the number of children enrolled is decreasing annually, given the demographic crisis, the proportion of children of this age is decreasing, i.e. all children, regardless of whether they are enrolled in the education system. It is evident that as the trend in the number of children enrolled is decreasing, so is the trend in the proportion of all children enrolled. And this has been happening in the last five years with strict implementation of instruments like the Scoping Mechanism.

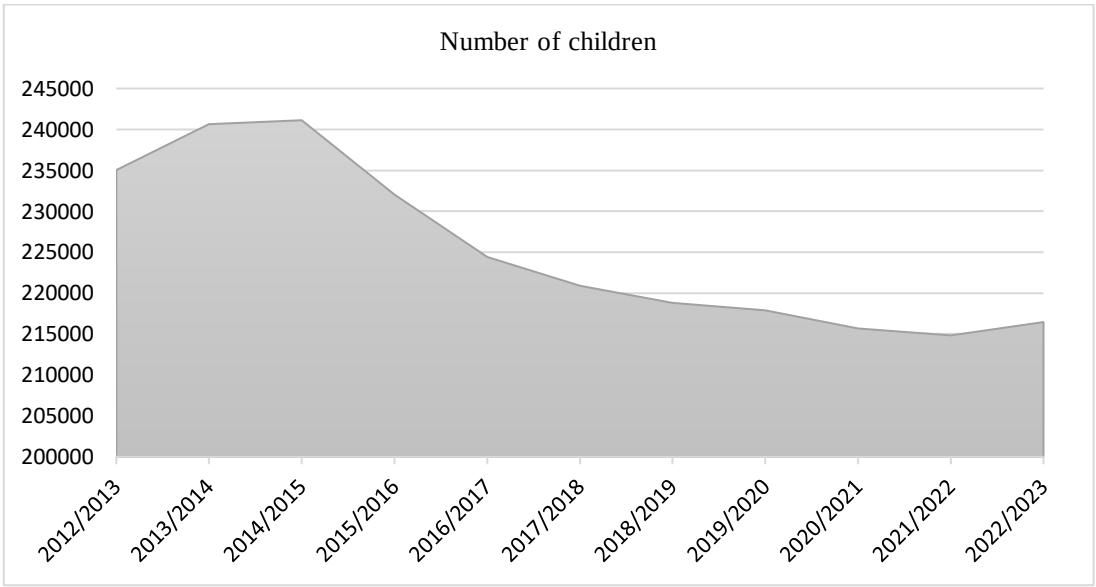

Figure 2. Children enrolled in kindergartens and preparatory groups in the country by year (NSI) [12]

Of interest is the extremely high growth in the group net enrolment ratio for the last two school years - 2021/2022 and 2022/2023. If one were to disregard the enrolment data for the country as a whole by year, which shows that there is no significant change in the years from 2018 to 2023, it would be erroneous to conclude that there has been a positive trend in kindergarten enrolment and retention for the last two years. However, since the group net enrolment ratio is that of nursery and preparatory group enrolments

nationally, and there has been no change in it, then, according to the definition given above for it, the total number of children of this age has declined strongly. And this is explained by declining birth rates and demographic decline as a consequence. Consequently, there has been no increase in nursery and pre-school enrolments.

Conclusion

The process of supporting inclusive education in our country is not efficient enough in the 3-6 age group. This conclusion is consistent with the demographic trend of population growth in the analysis.

The effectiveness of the outreach mechanism remains questionable until indicators considered by the European Commission to be a satisfactory target in the inclusion of drop-outs and the unreached in the education system are achieved.

It remains a serious challenge to provide all the necessary flexible, timely resources in order to constitute an inclusive education system in the country, even though it is defined as such by legislation.

The problem is systemic and its solution seeks strategic changes in organizing and guaranteeing the inclusive process in our country.

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Issue Article

Jetkerbay Abatbaevich Berdimuratov
Nukus branch of UzSIAC
Lecturer
Nukus

THEORETICAL FOUNDATIONS, HISTORICAL SOURCES, STUDIES OF ALGAE AND FRESHWATER

Abstract: *The article deals with the Artistic literary genre with creators of lofs or algae lofs. Its performer (lofchi) is a genre that lives in the cultural life of the people without musical instruments, sometimes in bases, holiday antics, to laugh at young guys, laugh at them and exert an artistic and aesthetic influence.*

Key words: *Literature, performance, aesthetic influence, phenomenon, an interesting act, puppet.*
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Introduction

In the cultural life of the Karakalpak people, works of artistic oral of the people are a rich spiritual treasure of the people, reaching generations of generation of people: folk birds, fairy tales, legends, riddles, thermal, spiritual feeds. It was these artistic oral works that were published in the press by literary scientists fellow gardeners, storytellers, as well as assessed about most genres and special scientific works were carried out. In these artistic oral, genre, idea -thematic artistic and aesthetic sources of works have been created. From this rich spiritual treasure, Lof algae or lofs, which has a special genre appearance, still remain one of the works unrealized from the point of view of literary criticism. Artistic literary genre with creators of lofs or algae lofs. Its performer (lofchi) is a genre that lives in the cultural life of the people without musical instruments, sometimes in bases, holiday antics, to laugh at young guys, laugh at them and exert an artistic and aesthetic influence.

Distinctive features characteristic of folklore works: - Russian scientist A.N. Veselovsky: - "Each folklore work had distinctive features. Basically, we must first consider folklore as syncretic art (art). In its slogan (folklore), the traditions of the people, life, theatre, music, the art of fists sound in different forms, the performance of which cannot be separate from each other, but in general".[1]

Thus, in Karakalpak folklore, the creation and execution of the lof genre by improvisational methods takes place. If the performer or lofer is not an improviser, he may not be able to perform this story in a fascinating, ludicrous way. "Improvisational style is an artistic literary phenomenon available in all forms of art (fiction, music, painting, choreography). This artistic literary phenomenon acquired the features of unprepared, divine, divine talent that natural talent was, as well as strength".[2]

"In genre, lofs are very close to funny hangoms (anecdotes). However, the use of strong hyperbolic, fantastic elements in them and dialogue-based construction distinguishes lofs from funny hangoms

[1] Veselovskiy A.N. «Sinkretizm drevneyshey poezii i nachala differenciacii poeticheskix rodov». Vkp. Istoricheskoe poetika. L. 1940 g. Str. 200.

[2] Axmetov S., Baxadırova S. Folklorlıq terminlerdiń qısqasha sózligi. Nókis: «Bilim»., 1993., 40-41-betler.; Axmetov S.,Esenov J., Járimbetov Q., Ádebiyattanıw atamalarınıń orıssha-qaraqalpaqsha túsindirme sózligi, Nókis:-«Bilim», 1994.p 152.

(anecdotes). If funny hangoms become massively strong, then lofs are mainly thrown by professional performers into the repertoire of ascites (likes) and fans of".[3] Lofs were created by lofists through improvisational methods, creating various phenomena about hyperbolic images in the cultural life of our people. Any said lof has a double base. Therefore, in lofs they are saturated with life factors, the volume, plot-compositional, idea-tactical, created and executed, the improvisation program is close to paired algae. Lof heroes are ordinary citizens, life objects, events, certain events or things, etc. Living and homeless things.

The events in it are described from a very beginning to the end. The willow genre is the goal of lofists who was its performers to prove to people the meaning of right thinking, to strengthen the of trust in what is happening around. They, in turn, are so rich in hyperbolism, fantasy. Under the influence of lofs, the dignity of truth is assessed. Lofs were not published in a special round, although they were printed independently on the pages of the press.

Today in the literary process, in the productions of an artistic and aesthetic music show, theatrical hajviya (sideshow, stage shop, show programs "Sovǵa," "Cheerful and Cheerful"), as well as in some situations, listening to such melodies in buses, bases, shows we will walk.

In the science of Karakalpak folkloristics, the Lof genre did not have a special type of research work. However, lofs along with all folklore legacies were recorded in folk oral and kept in the manuscript fund of the Humanitarian Institute named after N. Davkaraev. Karakalpakstan link of the Academy of Sciences of the Republic of Uzbekistan. The manuscripts stored in the manuscript fund of this institute were reprinted and published by folklorist scholars and published since 2007 in the karakalpak folklore series for invitation to the people's scientific community. In the 84th volume of karakalpak folklore, where lofs are published (Nukus: «Ilm» nashriyoti, 2014-yil, 77-87-jildlar). In this jild «Aydos bilan Jumaǵul mergan » (P-450, №176393), «Shunga osmay, ku'lga osasanmi?» (P-533, №176476), «Ku'knarchilar» (P-534, №176477), «U'mrbekning bir lofchiga uchrashishi» (P-534, №176477), «U'mrbekning shogirdi» (P-453, №176396), «U'mrbekning qizi» (P-533, №176476), «Qudaybergan lofchi» (P-589, №180082), «Bulutga etgan bu'y» (P-450, №176393), «U'mrbekning bolasi» (P-450, №176393), «Otasini maǵlub qilgan bola lofchi» (P-450, №176393), «Saqpan» (P-1299, №183812), «Jayin» (P-1299, №183812), «…U hu'kiz ham edi» (P-588, №180401), «Ku'rganingni ayt» (P-141, №50413), «Qoraqalpoqning bu'linishi» (P-22a, №82401), «Yu'lovchining sharti» (P-22a, №82401), «Aybdor ku'za», (P-448, №176391), «Mir deysanmi?» (P-535, №176478), «Baliq bu'l-a, enaǵar!» (P-535,iNo176478), «Aldangan xon» (P-535, №176478), «Ikki ku'knarchi» (P-535, №176478), «Qiroat bilan gaplashish» (P-535, №176478), «Mu'llani yiǵlatgan chu'pon» (P-535, №176478), «Tariqdan bu'sh qolgan odam» (P-535, №176478) published 24 lofs or lofs. The study of genre, idea - theological and artistic-aesthetic sources of lofs, published in the 84th volume of Karakalpak folklore, is one of the topical issues of Karakalpak folkloristic science. The Lof Hangom "Umrbek's Meeting with the Lofshere" published in this book, drew our attention to us: "For example, in the Umrbek era, one lofist who is used to inspiring Umrbek. Once at the market, he met with Umrbek and asked him to pick himself up. Umrbek:

"We will strengthen his side. Today we are returning to the village from the market, - dandy.

Upon arrival in Yule, Umrbek makes a sortie from the lofch. A group of people came out in front of Umrbek:

- What interesting events took place in the market, what is available, what is expensive?

Then U-rbek:

- Prices in the market are rising, but on the wave standing next to the market, all the fire of fish broke out, - he replied.

Not knowing what the amazed scumbags will say, dirt comes out before that. They overlap the lofer:

- We just got a message from one person about the market, he told us that he fire in force, said that he just didn't lier, we couldn't distinguish that he was healthy or crazy that you were in the market, tell us.

Then the lofchi:

- It's good that fire in the sky, when all the fish that hit the market today have their tails and feathers burned, - debley.

Not knowing they trust or trust, they leave.

Umrbek learns the lofist's answer, which he received behind his back, and agrees to this ".[4]

Like those performers of these genres who mixed with algae (anecdotes), they were very talented, waterproof, carefree, carefree, smart, able to say everything and say (hyperbolic). The power of the influence of suicidal content, idea, plot and art on the performer. Lofhoma "Meeting Umrbek to one lofshere," which we embodied as an example, has not yet experienced great value. These hangoms in the bases were performed by boyfriends and mixed young guys. The Karakalpak people are rich in algae since ancient times.

[3] Ro'zimbetov S., Ruwzimbetov H. Folklor atamalari qisqacha luǵati, Urganch, «UrDU» , 2007.p 22.
[4] Qaraqalpaq folkloru (kóp tomlıq: 77-87-tomlar: 84 tom), Nókis:- «Ilim», 2014. p 422.

Despite the fact that our ancestors survived heavy parts of the time, not a single day caused commonplace, traditions, and intersectoral ties among the people. In an effort to win everyday virtues, ritual traditions by virtue of violence, looking for strong moods in it, he did not just surrender to worry. To do this, our people set a place for both worry and puppets, and found appropriate artistic tricks for them, and said that if they speak, then in a worry.

Just running a country, a country? Connecting the people with a powerful force, he solved poor services, agreements, conflicts. Wealth, peace only for the people. Since karakalpaks had arid, square, oratorical people, they became known to the whole world under the name "desert clouds." For centuries they served folk talents: bakhshi, fats, kissakhans, amateurs, Chechens, notes, newlyweds.

They largely follow traditions. In no case should people be trafficked - they used well-deserved folk traditions. All of them are in an artistic state. How many questions he solved in sweet language. There are various ways to soften language.

One of them is folklore, forever left by ancestors - popular wisdom. It's endless. Our folklore is only an artistic golden treasure created by an ancestor. One of them is "owning and rich." It is obviously a folklore genre, mainly in written literature. He has major masters.

In Karakalpak folklore there is a huge theme "Chechen algae." Their objects are wide and effective, the main issues of Jirensche various events in the cultural, literary, historical, economic situation of Chechens since the beginning of yesterday's XX century. Many of the Khan, Back scandals include those who put every warm seaweed job in place and solve it decisively. No one objects to it. In Karakalpak folklore there is a huge theme "Chechen algae." Their objects are wide and effective, the main issues of Jirensche various events in the cultural, literary, historical, economic situation of Chechens since the beginning of yesterday's XX century. Many of the Khan, Back scandals include those who put every warm seaweed job in place and solve it decisively. No one objects to it.

Now there are much more natural talents in the life of the Karakalpaks, in the broad strata of the people, they have humor in which there is walking, water what he has done, and he can come to the surface without self-awareness. Allahtaila gave them this beat. However, in the nature of these people, I do not try to stay like this. That's his talent. Created in this way. It is necessary to educate them. Whoever they talk to was treated, they would spend those best qualities. The humor and satire they encounter. It doesn't work deep. These ridiculous situations, both on natural water and at work, occur without will. These swords are not negative, but, on the contrary, positive. He is very respected by those around him. Because they are doing well. An interesting conversation, a smiling answer, an interesting act. These are artists, they are in roles, ridicule - you don't need to understand. Such people are smart, prosperous, know how to behave, are workers, smart.

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Issue Article

Gulbakhor Tavaldieva
Tashkent Institute of Chemical Technology
ORCID ID: https://orcid.org/0000-0001-8547-9636
+998909448164
gulbahor_tavaldiyeva@mail.ru

ON THE BORROWED LEXEMAS IN THE LANGUAGE OF ALISHER NAVOI'S WORKS

Abstract: *Each language develops and grows rich with the help of such internal features as changing endings, suffixes, using a word to make a new meaning, in addition, the development of a language is influenced by borrowing lexical units from other languages, including external factors. This process proceeds on the basis of certain laws of language. The article provides a scientific analysis of the historical formation of the names of dishes that exist in the vocabulary of the Uzbek literary language, included in it from the Turkic, Persian-Tajik, Arabic, Chinese languages, based on the works of the great 15th-century poet Alisher Navoi.*

Key words: *borrowed words, lexeme, dish names, word formation, Turkic words, etymology, factor.*

Language: *English*

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Introduction

Alisher Navoi is one of the largest representatives of the world literature. Navoi considered the development of the literary language one of his main tasks. It was in the poet's lyrics that the Turkic verse reached the pinnacle of artistic expressiveness: his gazelles amaze with filigree finishing of details, virtuoso compliance with formal rules, semantic play, freshness of images, allegories and metaphors. Thanks to the lyrics of Navoi, Farsi is losing the status of the only literary language.The great literary heritage of the brilliant poet and thinker A. Navoi has been exerting a favorable influence on the literary and mental development of other nations for several centuries. Over the past five centuries, the Uzbek literary language has improved on the basis of the literary heritage of the great A. Navoi, continuing his advanced traditions. Navoi is recognized throughout the world as a great and brilliant classic, and the study of his work, for many decades, has been in the field of attention of many literary critics. The rich literary heritage of Navoi, which includes collections of poems, gazelles, scientific works and poetic treatises, serves as an encyclopedia of life that points the right path. Each language develops and enriches itself not only through word formation and the use of words in other concepts, while using internal capabilities, but also with the help of external factors, that is, the adoption of linguistic units of a foreign language. Of course, this process is carried out on the basis of specific language rules.

CHAPTERS.

There is not a single language in the world whose vocabulary consists only of the words of this language. The formation of a language is a complex, multi-stage and ongoing process. Borrowing occurs as a result of economic, political, cultural contacts with other nations. In the process of usage, most of the borrowed words are influenced by the borrowing language. Gradually, borrowed words are included in the number of commonly used words and are no longer perceived as foreign.

Words borrowed from other languages retain their original form or harmonize with the lexical system, grammatical structure, nature, word formation and spelling rules of the language. In the lexical composition of the Uzbek literary language,

one can find words borrowed from Arabic, Mongolian, Persian, Russian, as well as through the Uighur language-Chinese. If you look at the stages of development of the Uzbek literary language, you can see that borrowings occur at different times for different social reasons. For example, if borrowing from the Persian-Tajik language occurred as a result of the fact that these peoples lived side by side since ancient times, then Arabisms came into the language mainly together with scientific and fiction, in particular, through oral speech.

In the works of A. Navoi, you can find many Persian and Arabic words - the names of dishes. Some of these borrowings so penetrated into the works of the poet that they actively participated in word formation, along with Turkic lexemes. Food has a special place in human life. The names of food products and dishes that reflect on the spiritual world, the standard of living and the place in the society of people have their own etymology. For example, the definition of the names of food products and dishes, the analysis of the etymology of these words used in the works of Navoi, the analysis of the etymology of these words provide important information. And also, this information is very valuable in determining the lifestyle and cultural level of the Uzbek people. In the monograph of Professor H.Dadabaev “Devonu lugatit turkning til hususiyatlari” the phonetic, lexical and semantic features of the old Turkic language were analyzed [3, pp.66-67].

The names of food products and dishes have interested not only linguists, but also specialists in other fields. For example, in order to study the traditions and customs, lifestyle, cultural characteristics of the Uzbek people, historians studied the names of dishes as part of the ethnographic vocabulary. We know the works of K. Shoniyozov [4, -206 p.], and M. Kurbonova [7, -156 p.], who studied the names of food products and dishes from a historical and ethnographic point of view.

DISCUSSION.

As you know, the original words of a language consist of words formed on the basis of the internal capabilities of the stages of development and formation of each language. In the development of linguistics with the help of internal capabilities, the main factors are the following:

1) language enrichment through word formation through internal capabilities;

2) vocabulary enrichment based on lexical units related to obsolete historical and old sources;

3) due to the dialects of the vocabulary of the literary language.

The concept of native words of a language means that they are formed on the basis of the lexemes of this language, as well as with the help of the formations of their own affixes and words of other languages. From this point of view, the original words used in the works of Alisher Navoi can be divided into the following groups:

a) native Turkic words;

b) new lexemes. Formed on the basis of native Turkic words;

c) words formed by adding Turkic endings to borrowed words.

In the works of A. Navoi, 56 lexemes related to food products were used, of which 53% are native Turkic words. For example: Utmak - bread; Chalpak - pancake; Kumoch - bread baked in ashes; Kuloch - 1. Halva type sweet. 2. Sweet cake with nuts; Umoch - the first byudo; Djugrot - curdled milk; Katlama - katlama; Kuymog - pancake; Tutmoch - type of dish; vermicelli soup; Bulamog - bulamoq, atala; Bugro - a meal cooked by grinding wheat and served in a large gathering; Qovurmoch - fried wheat; Tolgon / tolkon - talkon; Sut - milk; Kaymog - sour cream; Katik - curdled milk; Paneer - cheese; Kimiz - koumiss; Kurut - kurt (dried curdled milk); Yog - oil; Sarig yog - butter; Quy uchasi -hip meat; Uloba - a dish; Et - meat; Kazi - Kazi; Shilon / Shulon - shulon, a common dish; feast of the shah.

The Uzbek language belongs to the family of Turkic languages and for this language the vocabulary of the Turkic languages is considered to be the historical basis. Therefore, the basis of the lexical richness of the Uzbek language is the original Turkic languages. It is quite clear that the main criteria for determining the originality of a language are, firstly, that the word is genetically related to this language, and secondly, it is ancient.

It is known that the original Turkic words found in the works of A. Navoi historically belong to ancient written sources. Through them we can get valuable information about the history of our people and the development of the Uzbek language.

As examples of the original Turkic language, the following words can be indicated: bugro - food prepared from wheat by bleaching it. This food is prepared at large events with many guests.”; day - milk; paneer - cheese; kazi - brisket and intercostal meat of horse meat, kazy is prepared as food by dense insertion into the horse's large intestine.

In the process of historical development, economic, scientific, and cultural relations are taking place between the peoples of the world. As a result of such relationships, the vocabulary of languages is enriched with new words and concepts. Indeed, the Uzbek language, like the Uzbek people, in the history of its development was in contact with the languages of many other peoples. As a result, some part of the vocabulary of the Uzbek language consists of borrowed words.

In the vocabulary of the Uzbek language, internal possibilities are an important source. Despite this, there is not a single language in the world that would rely only on its internal capabilities. And therefore, the Uzbek language also cannot rely only

on its original words and possibilities. In the improvement of the Uzbek language, external sources have a prominent place. In general, no language can exist only in its pure form. Consequently, the mutual cooperation of multilingual peoples, communication between peoples, political, economic and cultural ties between them contribute to a change in the lexical composition of these peoples. As a result, there is a borrowing of words and concepts between these peoples. This process occurs in different ways due to historical circumstances.

The lexemes in the dictionary of the Uzbek literary language are not only characteristic of Turkic languages in terms of their historical formation, but there are also words from the Persian-Tajik, Arabic, Mongolian, Russian languages, as well as from the Chinese language through the Uyghur language. If we look at the stage of development of the Uzbek literary language, we can see that these words were adopted in different periods for different social reasons. For example, as a result of the Persian conquests, the Uzbek and Tajik peoples have lived side by side since ancient times and had social and cultural relations with each other, and Arabic lexemes came mainly through the book language and Persian language, and partially through oral speech.

Borrowings are typical for the Uzbek literary language, as well as for other languages of related Turkic peoples. Naturally, the level of assimilation of borrowings in the vocabulary of different spheres occurs in different ways. In particular, we can see that the terminology of food and dishes has been enriched by borrowings from Persian, Arabic, Mongolian, and even from Indian languages.

In the process of historical development, mutual economic, political, scientific, and cultural relations occur between the peoples of the world. As a result, the vocabulary of languages is enriched with new concepts and words representing them. In fact, in harmony with the Uzbek people, the Uzbek language has been in contact with the languages of many other nations in its historical development. Therefore, a certain part of the vocabulary of the Uzbek language is made up of borrowed words.

Uzbek language is an important resource for the enrichment of the vocabulary. Nevertheless, just as no other language in the world works based on its own internal capabilities, the Uzbek language is not sufficient only with its own words and capabilities. External sources also play a significant role in improving the vocabulary of the Uzbek language. In general, any language cannot live in a pure state [Begmatov E. Lexical layers of the current Uzbek literary language. -T.: SCIENCE 1985. -P. 103.].

Therefore, it is natural that the mutual cooperation, neighborliness and trade relations of peoples belonging to different languages have an impact on the development of their languages, first of all, on the lexicon. As a result, exchange of words and acquisition occurs. This process varies depending on historical circumstances.

Like other related Turkic languages, the Uzbek literary language is characterized by word acquisition. Naturally, the level of assimilation of foreign words into the lexicon of different fields is also different. In particular, we see that the terminology of food is enriched by Persian, Arabic, Mongolian and even Indian words.

PERSIAN BORROWINGS.

It is well known from history that Turkic tribes lived on the territory of Central Asia from time immemorial. In Central Asia, between the rivers, Turkic-speaking tribes have long lived together with the Persian-speaking population. Thus, there were cases when socio-political, cultural and other ties were established between the Turkic-speaking and Iranian-speaking peoples.

Despite the fact that these peoples belong to different ethnic strata, the multilingual peoples of Central Asia lived in almost the same conditions, participated together in production, fought together for injustice and oppression. Such cultural, everyday and literary ties led to further rapprochement of these peoples, strengthening cooperation [5, p.159].

It should be noted that the poets and writers of the 14th-15th centuries, who knew the Persian-Tajik language well, created in two languages. This means that the following factors played an important role in the borrowing of Persian words into the Uzbek language: a) the fact that these peoples have long lived in the same region, in the same social, economic, spiritual and cultural environment; b) widespread Uzbek-Tajik and Tajik-Uzbek bilingualism; c) the traditions of creativity in the Tajik-Persian language continued for many centuries; d) the Persian-Tajik language had a special position in the Kokand Khanate and the Emirate of Bukhara; e) the usual compatibility of literature, art, culture, customs and traditions of these peoples.

In the vocabulary of Alisher Navoi's works, one can find 5489 Persian words denoting the names of food products and dishes [2, p.155]. This number ranks second in the vocabulary of Alisher Navoi's works. After the Turkic names of foodstuffs and dishes: bread, soup, shir, falla, kebab, bat kebab, pink dunba, nabot, poludai dushab, raisins, raisins, sweet almonds, soup, harisa, snacks.

Bread is one of the most favorite works of man. In Navoi's works, the lexeme of non, borrowed from the Persian language, is often found, but the Turkish lexeme otmak, which has the meaning of this word and was standard for that time, was used more often. There are many examples of this especially in the work "Waqfia". It is known that Hazrat Navoi was very generous. In "Waqfia" the donations and assistance of this breed to the country, poor people, orphans, poor people, and students are recorded. In the

work, information is given about the salary, benefits and financial support given to the employees of "Binoy Khair" built by Navoi and their users from time to time.

The lexeme **"Osh"** was adopted into the Uzbek language from Persian. In Navoi's works, this word is used in two senses: as a general name of food (types of cooked hot food) and as a specific type of food (pilaf). It seems that the meaning of this word has expanded and increased by one in the modern Uzbek language.

An exemplary story is told in the epic "Hayrat ul-Abror". The gist of the event is as follows: At the king's banquet, a slave accidentally slipped and spilled the hot soup on the king's head. Both the slave himself and the others think that the king will now order the execution of the guilty party. The king, being merciful, forgives the slave's sin: he does not punish him. Then, when one of the king's relatives asked why he did not punish him, the noble ruler replied that "there is no need to kill a person who has died once, because he was afraid of what he had done as a slave." In this story, a special type of food - "shilon" and the terms "isig' oshni" meaning cooked hot food can be found.

Sugar. Our ancestors knew how to get sugar from sugarcane and beets from a long time ago. This word has been borrowed from Persian and refers to a pale sandy sweet that is industrially extracted from the beet or sugarcane plant. Alisher Navoi used this word a lot in his poetry in its meaning and for the quality of the lips.

Arabisms. As you know, the arrival of Arabic words in the Uzbek language is interconnected with the conquest of Central Asia by the Arabs and socio-political results of this invasion. After the Arab army conquered Central Asia in the 7th - 8th centuries, the Islamization of the local population began. Office work in schools, madrasas, mosques, as well as official business correspondence was conducted in Arabic.

Thus, the tradition of the formation of the Arabic language as the language of office work and the state language continued for quite a long time. The Arabization of moral, spiritual, scientific, educational and socio-political life led to the Arabization of the Uzbek language. And this, in turn, led to the assimilation of the local population of the Arabic language, as well as the emergence of Uzbek-Arabic bilingualism. The arrival of Arabisms in the Uzbek language occurred, to a greater extent, in the 7th-8th centuries. In the old Uzbek language of the 14th-15th centuries, Arabic vocabulary made up a significant layer. In this regard, in the works of Alisher Navoi, words and expressions taken from the Arabic and Persian-Tajik languages make up a significant number. 30-33 percent of the words in the vocabulary of poetic works and scientific works of the poet are precisely Arabisms. And also, Persian-Tajik lexical elements make up 18-20 percent [1, p.254].

Arabic words entered the Uzbek language as a result of various factors, and Turkic lexemes took a firm place in the Arabic language. The Arabic words that came to the Turkic languages and denoting the names of dishes and foodstuffs are mainly the names of sweets and confectionery***: kurs, asal, shahd, fatir, halvo, halim, tiranjabin, sikanjabin.***

Fatir/patir. Today, fatir is one of the favorite types of bread on the Uzbek table. This lexeme, borrowed from the Arabic language, phonetically adapted to the Uzbek language, is now called patir. The expression "patir ushatish" formed with the participation of this word is currently used in Uzbek folk ethnography to refer to "engagement ceremony of a girl". Also, the proverb "patir" originated from Khamir, which is used to express the meaning of "the beginning of a big thing, a work, an initial small part, a share".

"Halim" is an Arabic adaptation used in "Waqfia". In the explanatory dictionary of the Uzbek language, halim is explained as "thick food cooked by adding wheat semolina and meat to water and boiling it for a long time (until it becomes mushy). Halim is still actively used in our language under this name and has a place in the diet of Uzbek dishes.

Chinese borrowings. The peoples of Central Asia conducted trade relations with China through the Great Silk Road. In addition, the spread of Buddhism ensured cultural and other ties between the peoples of the East and the relationship of languages. This can be seen in ancient Sino-Turkic cultural and literary relations. As is known, the roots of the socio-political, economic and cultural relations of these peoples go back centuries. As a result of this cooperation, lexical borrowings from Chinese came to the Turkic languages. For example, manti [Ch. myang - dough + ti - meat. A dish made from dough, meat and minced onion.

The Uzbek language belongs to the family of Turkic languages, and the basic lexicon of Turkic languages is an ancient basis for this language. For this reason, the ancient basis of the vocabulary of the Uzbek language consists of the original Turkic words, which are actually the Turkic languages themselves.

Indian borrowings: amna, umna (mango) - a special dish prepared with the addition of spices; tanbul is a special dish prepared in India with the addition of leaves and spices.

CONCLUSION.

In conclusion, we can say that a) the names of dishes and food products in the sources consist of native Turkic words, as well as lexemes formed by adding various affixes to borrowed words, they make up a significant part of the names of food products in the works of Alisher Navoi; c) the enrichment of the vocabulary of Alisher Navoi's works was facilitated

not only by the internal possibilities of the language, but also by external factors; e) in the studied sources, along with borrowings from other languages as a result of socio-political, economic and cultural relations of peoples, there are new words and concepts of Indian and Chinese origin, which appeared as a result of changes in the life of society in the field of food; d) in the study and joint analysis of lexical units of native Turkic and borrowed words, it was revealed that many names of dishes and food products still have their original meaning.

The creative heritage of Alisher Navoi is considered a great and inexhaustible wealth for us and the future generation. Every lexical unit, every word in the works of Alisher Navoi testifies to the history of our people. Along with it, the names of dishes and foodstuffs used in the works of Alisher Navoi tell us about the vocabulary of foodstuffs of the 15th century.

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Issue Article

Denis Chemezov
Vladimir Industrial College
M.Sc.Eng., Academician of International Academy of Theoretical and Applied Sciences,
Lecturer, Russian Federation
https://orcid.org/0000-0002-2747-552X
vic-science@yandex.ru

Dmitriy Smirnov
Vladimir Industrial College
Student, Russian Federation

Egor Tuykin
Vladimir Industrial College
Student, Russian Federation

Sergey Lukashov
Vladimir State University named after Alexander & Nikolay Stoletovs
Institute of Mechanical Engineering & Automobile Transport
Student, Russian Federation

Ivan Chebryakov
Vladimir Industrial College
Student, Russian Federation

Andrey Karasyov
Vladimir Industrial College
Student, Russian Federation

Ilya Yakovlev
Vladimir Industrial College
Student, Russian Federation

THE EFFECT OF CASTING SPEED ON THE PHASE TRANSITION IN THE VOLUME OF STEEL CASTING

Abstract: *The process of phase transition of a liquid metal to a solid state during cooling was modeled in the article. Dependences of the change in the Péclet number, enthalpy, phase transition between liquid and solid phases and the temperature gradient of melt at casting speeds of 5, 50 and 200 mm/s were obtained. It is noted that at higher casting speeds, the investigated process parameters practically do not change at the temperature transition zone half width of 75 and 150 K.*

Key words: *liquid phase, solid phase, temperature, casting speed, casting.*

Language: *English*

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Introduction

Melt undergoes various phase transformations over time during the casting process [1-2]. Since these processes are accompanied by significant temperature differences in the volume of the casting produced, depending on the casting method, taking into account the type of material, phenomena such as shrinkage, heterogeneity of the structure and other casting defects are possible [3-7]. These undesirable phenomena may be the result of non-compliance with the casting process. Thus, the casting quality, that is, the uniform crystallization of the liquid phase, is also affected by the casting process modes. For example, the casting speed affects the filling time of the mold cavities with melt, and, accordingly, the uniformity of cooling the entire volume of the casting. This is important in the conditions of casting critical parts [8]. Thus, by choosing different casting speeds for the experiment, it is possible to determine the mechanism of the phase transition in the volume of metal melt. Since it is difficult to study the thermal phenomena occurring during the casting process, special computer programs of engineering analysis allow you to simulate the casting process in full under various modes [9-10].

Materials and methods

Heat exchange processes during the transition from the liquid phase to the solid phase under conditions of casting steel into a mold were studied. Steel has a low fluidity, which means that compliance with the quality of the casting will be time-consuming. Based on these considerations, steel was chosen as the casting material. The following casting process conditions were accepted: melting temperature – 1356 K; latent heat of solidification – 205 kJ/kg; heat capacity at constant pressure, solid phase – 380 J/(kg×K); heat capacity at constant pressure, liquid phase – 531.18 J/(kg×K); ambient temperature – 300 K; melt inlet temperature – 1473 K; heat transfer coefficient, mold – 800 W/(m^2×K); surface emissivity – 0.8. The casting speed of 5, 50 and 200 mm/s was adopted as a variable mode of the process. Readings of change in temperature properties in the transition phases of the casting volume were obtained at dT (temperature transition zone half width) equal to 75, 150 and 300 K.

Results and discussion

The following phenomena of the steel casting process were taken as investigated: the Péclet number, enthalpy, phase transition between phase 1 and phase 2, and temperature gradient.

The nature of heat transfer in the liquid phase of material is determined by the Péclet number. Heat can be transferred convectively or molecularly, depending on the magnitude of the Péclet number in moving melt flow.

Enthalpy is a function that characterizes the state of a system in thermodynamic equilibrium. The independent variables of the function are internal energy, pressure and volume.

The temperature gradient determines the direction and speed of temperature change in a certain place.

The dependences of the Péclet number, enthalpy, phase transition between phase 1 and phase 2, and temperature gradient on the melt temperature are shown in the Figs. 1-4.

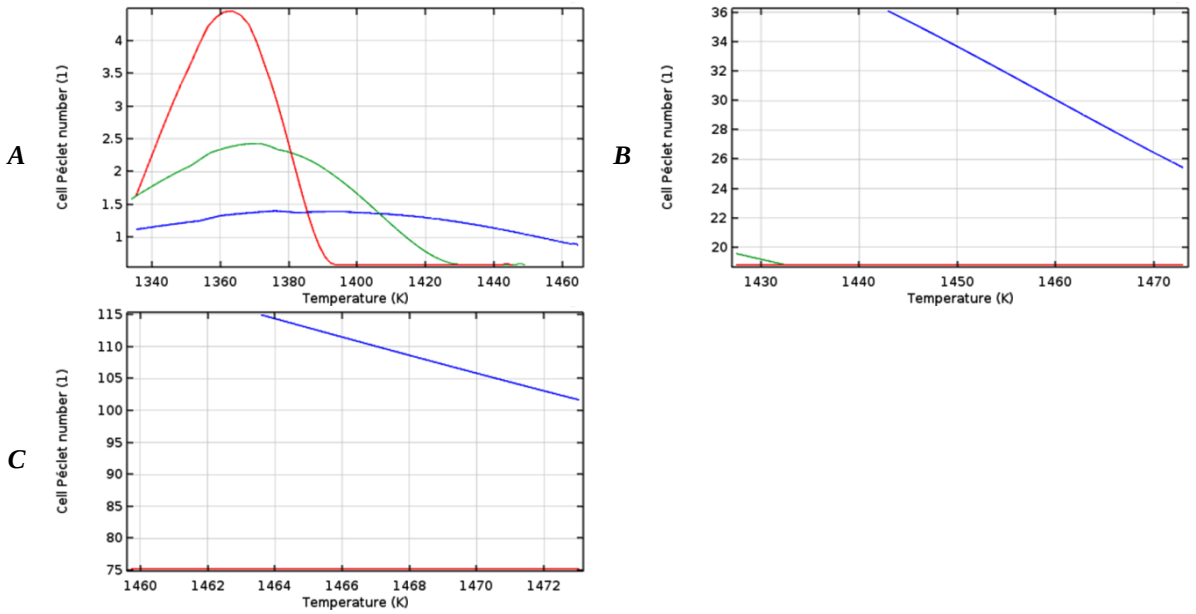

Figure 1. Dependences of the Péclet number on the melt temperature: *A* – casting speed is 5 mm/s; *B* – casting speed is 50 mm/s; *C* – casting speed is 200 mm/s. — temperature transition zone half width is 75 K, — temperature transition zone half width is 150 K, — temperature transition zone half width is 300 K.

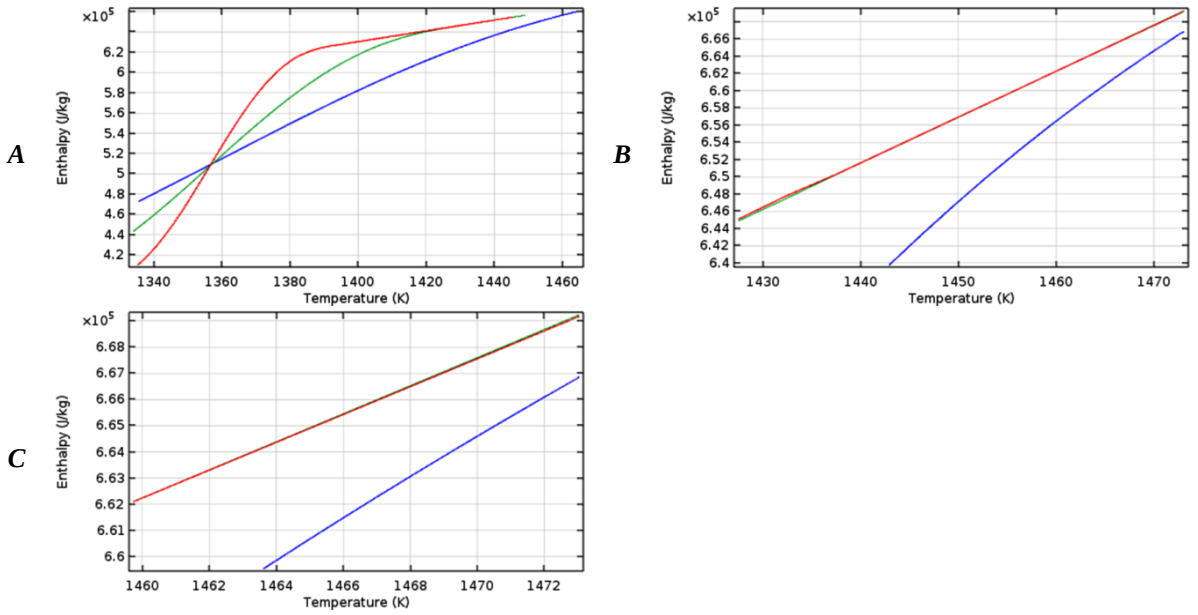

Figure 2. Dependences of enthalpy on the melt temperature: *A* – casting speed is 5 mm/s; *B* – casting speed is 50 mm/s; *C* – casting speed is 200 mm/s. — temperature transition zone half width is 75 K, — temperature transition zone half width is 150 K, — temperature transition zone half width is 300 K.

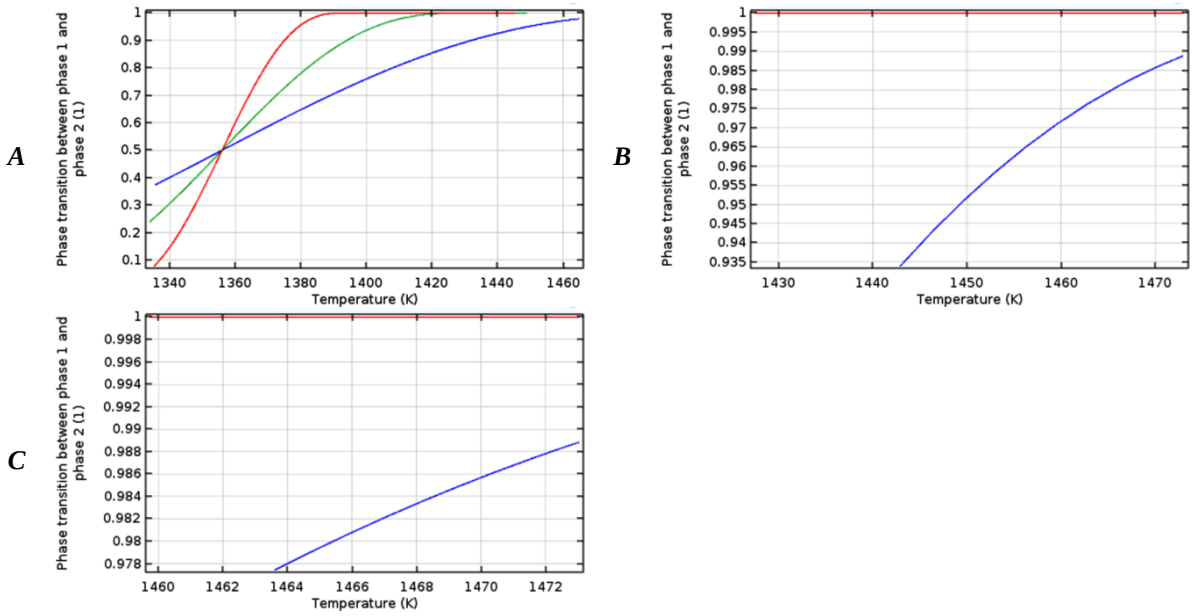

Figure 3. Dependences of the phase transition between phase 1 and phase 2 on the melt temperature: *A* – casting speed is 5 mm/s; *B* – casting speed is 50 mm/s; *C* – casting speed is 200 mm/s. — temperature transition zone half width is 75 K, — temperature transition zone half width is 150 K, — temperature transition zone half width is 300 K.

The molecular thermal conductivity of melt flow was noted at a casting speed of 5 mm/s. The largest values of the Péclet number for a given casting speed at different dT were determined with a shift of several kelvins starting from 1362 K. For dT equal to 75 and 150 K, the nature of the parameter change is the same: first, an increasing function to the largest value, then a decreasing function to zero. The change in the Péclet number was calculated in the range from 0.9 to 1.4 with a dT equal to 300 K. The temperature range of melt at a casting speed of 5 mm/s is 130 K. Convective heat transfer prevails at higher casting speeds. At the same time, there is no change in the convective heat transfer in the melt volume at dT equal to 75 and 150 K. There was a slight decrease in the values of the Péclet number at a small temperature range at a higher temperature. The melt temperature ranges at casting speeds of 50 and 200 mm/s are 50 and 13 K, respectively.

Enthalpy of the casting process increases with increasing melt temperature. Low casting speeds lead to a significant change in enthalpy over a longer temperature range. Enthalpy varies slightly over shorter temperature ranges with increasing casting speed. It is also noted that at a casting speed of 5 mm/s, all dependencies at a temperature of 1357 K have an enthalpy value of 5.1×10^5 J/kg. This is true for all dT values considered. The dependences for dT equal to 75 and 150 K vary equally at casting speeds of 50 and 200 mm/s.

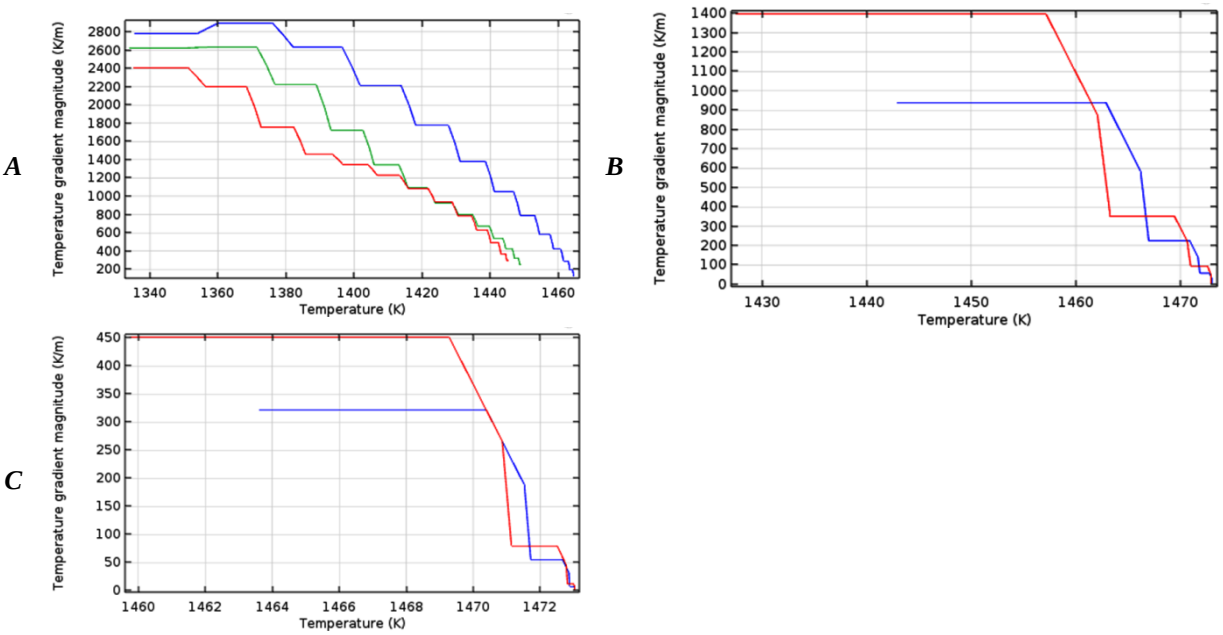

Figure 4. Dependences of the temperature gradient on the melt temperature: *A* – casting speed is 5 mm/s; *B* – casting speed is 50 mm/s; *C* – casting speed is 200 mm/s. — temperature transition zone half width is 75 K, — temperature transition zone half width is 150 K, — temperature transition zone half width is 300 K.

In the graphs shown in Fig. 3, one corresponds to the liquid phase, and zero corresponds to the solid phase. The graphs show that at a low casting speed and dT equal to 75 K, melt solidifies completely in the temperature range from 1384 to 1336 K. The crystallization process is still in transition phases at dT equal to 150 and 300 K. At high casting speeds, where high temperatures were observed, the solidification phase was completed by 3-7%.

The temperature gradient increases with a decrease in the melt temperature in all considered experimental cases. The change in the temperature gradient over time has a linear character: a decreasing function with alternating constant and variable ranges. At a casting speed of 5 mm/s, the temperature gradient is maximum, and at casting speeds of 50 and 200 mm/s is minimum. The temperature gradient values defined for dT equal to 300 K are more at low casting speed and less at high casting speed relative to other accepted dT values.

Conclusion

The casting speed affects the magnitude of the temperature range in which phase transformations are formed in the casting volume. The nature of change in the studied parameters, such as the Péclet number, enthalpy, phase transition between phase 1 and phase 2, and temperature gradient, is almost the same at high casting speeds. The temperature range of crystallization of the casting (1384-1336 K) at a casting speed of 5 mm/s was determined. With an increase in the casting speed, the values of the Péclet number and enthalpy increase, and the temperature gradient decreases.

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Issue Article

Marina Maxmudova
Andijan State Institute of Foreign Languages
Uzbekistan
mahmudovamarinocka@gmail.com

THE IDEA POSITION OF THE AUTHOR IN THE PRESENTATION OF THE ARTISTIC TRADITION OF K. G. PAUSTOVSKY'S SMALL PROSE (ON THE EXAMPLE OF THE STORY «TOAST»)

Abstract: *In this article, the author, based on the content and analysis of the story "Toast", examines the ideological and artistic, genre and style features of the work of K. G. Paustovsky.*
Key words: *ideological position, composition, language, hero, romance, author's presence.*
Language: *Russian*
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ИДЕЙНАЯ ПОЗИЦИЯ АВТОРА В ИЗОБРАЖЕНИИ ХУДОЖЕТВЕННОЙ ТРАДИЦИИ МАЛОЙ ПРОЗЫ К.Г.ПАУСТОВСКОГО (НА ПРИМЕРЕ РАССКАЗА «ТОСТ»)

Аннотация: *В данной статье автор на основе содержания и анализа рассказа «Тост» рассматривает идейно-художественные и жанрово-стилевые особенности творчества К.Г.Паустовского.*
Ключевые слова: *идейная позиция, композиция, язык, герой, романтика, авторское присутствие.*

Введение

В 30-е годы XX века происходило жанровое разделение повести, очерка, рассказа и наполнение их новыми элементами содержания, отражавшие перелом в народной жизни, человеческих отношениях, становление новой личности. Каждый из писателей, решая общие творческие задачи, вместе с тем искал свои литературные средства и формы художественного отражения становящегося социалистического бытия. Творчество авторов XX века настолько сильно контрастирует друг с другом, что понятие и проблема индивидуально-авторской поэтики и стиля, встает сама собой [5,6,7,8].Встречаясь с людьми-созидателями, вместе с ними вдыхая воздух небывалого в жизни человечества времени, К.Г.Паустовский начинает глубже осознавать необычайную эпоху, которую он назовёт «эпохой создания новых человеческих отношений и новой жизни» [4, с. 17]. Именно в этот период он делает важный для себя вывод об идейной позиции литератора: художник должен приобщаться к действительности, к борьбе, входить в гущу жизни как «полноправный строитель своей замечательной страны».

Как и другие писатели романтического мироощущения, например Б.Лавренев, Вс.иванов, Н.Тихонов, К.Паустовский стремился не только понять новую действительность, но и в романтическом ключе изобразить человека революционной эпохи, показать повседневную борьбу за осуществление его мечты в новых исторических условиях[10, с.14]. На произведениях Б.Лавренева Паустовский учился созданию героических характеров русской интеллигенции, Вс.Иванова – изображению народных сил, стойко отстаивающих завоевание революции, Н.Тихонова – раскрытию романтики революционного долга.

В 30-е годы основное внимание в произведениях К.Г.Паустовского уделяется нравственным и эстетическим позициям человека. Вспомним рассказ "Тост", где К.Г.Паустовский рассказал об одном таком человеке. Он написал историю о капитане Шестакове. Капитану было поручено доставить послание от адмирала командующему бригадой крейсеров, но для этого ему пришлось пробиваться сквозь ряды немецких миноносцев «Миноносец «105» наскочил на три германских разведочных крейсера. Шестаков повел миноносец в обход крейсерской эскадры, стараясь уклониться от прожекторов, но они спокойно нащупывали его и не отпускали ни на секунду. Три реки дымного света тянулись к бортам миноносца и зажигали иллюминаторы нестерпимым блеском» [1, с.6]. И когда, неимоверными усилиями, это удалось «Бой длился больше часа. У миноносца «105» были сбиты трубы, он получил две пробоины выше ватерлинии, в носовом кубрике начался пожар. Восемь матросов и механик были убиты. У Шестакова осколком снаряда оторвало левую руку, и корабельный фельдшер наложил ему тугую повязку. Она все время промокала кровью, и Шестаков часто терял сознание. К четырем часам утра миноносец вышел из огня крейсеров и взял курс к главным силам эскадры. Шестакова отнесли из боевой рубки в каюту», оказалось, что адмирал всего лишь послал тост «Бригада крейсеров благодарит монарха за тост, провозглашенный его величеством в честь наших славных моряков и доставленный судам бригады миноносцем «105» ». Что сделал Шестаков, когда узнал, какому риску он и его команда были подвергнуты? Он затопил корабль *«Шестаков остался. Он спустился вниз и открыл кингстоны. Вода хлынула в отсеки миноносца и хрипела в них, как кровь в горле расстрелянного. Миноносец медленно начал валиться на борт и затонул»* [5, с.467]. Сможет ли читатель понять то, что описывает К.Г. Паустовский? Зависит от того, сможет ли читатель принять/ не принять действия, совершенные капитаном Шестаковым.

Содержание рассказа «Тост» включает в себя раскрытие закономерностей развития новой жизни, познание устремлений и характеров советских людей, преобразующих действительность, воспроизведение типических черт и судеб простых, честных и верных своему делу людей. Анализируя форму данного произведения, можно убедиться в том, что великий классик русской литературы строго подчинил каждый элемент текста задаче воплощения своего идейного замысла. Для обрисовки пустоты души, отсутствия человеческих ценностей и морали жизни господствующего тогда класса К.Г.Паустовский создает образ типичного представителя «высшего» общества адмирала Фитингофа *«Фитингоф, так же как и Битти, никогда не выпускал из тонких бабьих губ маленькой трубки, вечное перо торчало золотым лепестком из кармана его кителя, а по вечерам адмирал раскладывал пасьянс. Во многих словах Фитингоф делал неправильные ударения, стараясь подчеркнуть свое законченное презрение к русскому языку. Иногда «чухонский Битти» позволял себе странные шутки. Приветствуя какой-либо корабль в день судового праздника, он приказывал поднять сигнал:*

– Как жизнь молодая?

Смущенный корабль, не решаясь отшучиваться, почтительно благодарил адмирала» [5, с.465].

В целях осмысления характера и положения передовой части русского народа начала XX века писатель изображает верного своему делу и Отечеству капитана Шестакова, ставшего примером «почти непонятного мужества». Капитан во время войны с фашистской Германией командовал миноносцем «105». Автор не случайно именно так именует миноносец Шестакова, ведь данное число обозначает совершенство и гармоничное развитие, что дает возможность читателю понять о победоносных достижениях миноносца и его команды.

Раскрытие характеров этих двух персонажей потребовало того, чтобы они были участниками ряда событий, в процессе которых могли бы выявиться их наиболее существенные свойства *« – Лейтенант, сейчас же выходите на своем миноносце к Алландским островам, где стоит бригада крейсеров. Вручите командующему бригадой этот секретный пакет. Ответ командующего немедленно доставьте сюда.*

– Есть! – ответил Шестаков очень тихо: он боялся нарушить стальное безмолвие корабля.

Через час миноносец «105» вырвался в черную пенистую ночь, и только гул пара из его низких труб был некоторое время слышен вахтенными на сторожевых кораблях.» [5, с.465] *, «Адмирал встретил Шестакова на палубе и провел в каюту.*

– Государю императору, – сказал он глухо, – будет подан рапорт о геройском поведении – как вашем, так и всей команды миноносца «Сто пять».

Вы же немедленно отправитесь в дворцовый госпиталь.

Фитингоф вскрыл пакет, вынул донесение и, далеко отставив его от глаз, рисуясь своей дальнозоркостью, начал читать.

Шестаков, не менее дальнозоркий, чем адмирал, увидел короткие строчки секретного донесения:

«Бригада крейсеров благодарит монарха за тост, провозглашенный его величеством в честь

наших славных моряков и доставленный судам бригады миноносцем „105“».»[5, с.467], *«– Приказываю всем сейчас же съехать на берег. На тост государя я отвечу сам.*

Команда повиновалась. Матросы ничего не поняли, кроме того, что ослушаться этого приказа нельзя.

Шестаков остался. Он спустился вниз и открыл кингстоны. Вода хлынула в отсеки миноносца и хрипела в них, как кровь в горле расстрелянного.

Миноносец медленно начал валиться на борт и затонул.» [5, с.467]. Можно заметить , когда автор вспоминает о судьбе Шестакова, говорит о том, что Шестаков лейтенант (*«Адмирал, не глядя на Шестакова, сказал, пережевывая слова вместе с мундштуком трубки:*

– Лейтенант, сейчас же выходите на своем миноносце к Аландским островам, где стоит бригада крейсеров.») [5, с.465] , а в начале рассказа читатель знакомится с Шестаковым как с капитаном (*«Я узнал его. Это был капитан Шестаков.»)* [5, с.464]. Следовательно, можно сделать вывод о том, что после больницы Шестаков не сдался и не отчаялся, а продолжил свою службу родине. Паустовский создает картины жизни рабочего-патриота начала XX века и показывает социально-исторические условия, в которых протекало развитие нового человека.

К.Г.Паустовский в своих произведениях, даже небольших, не ограничивался отражением жизни, а старался воздействовать на нее, внушая читателю определенное отношение к показанным явлениям. Поэтому , группируя образы, ставя действующих лиц в те или иные положения и показывая их участие в различных событиях, он не только отражает осознанные им закономерности жизни, но в тоже время всей логикой изображаемого им развития характеров и событий стремится ненавязчиво подвести читателя к нужной оценке этих закономерностей, оставляя выбор за читателем. *«Шестакова успели снять. Ночью он был арестован и отправлен под конвоем в психиатрическую больницу. Он был вполне нормален, но просидел в больнице два года.»* [5, с.467].

Данное положение проявляется в полной мере и в построении рассказа «Тост». Композиция данного рассказа , как и полагается, участвует в раскрытии содержания произведения и реализации его идейно-тематического задания. Надо сказать, что построение рассказа К.Г.Паустовского «Тост» необычно. Композиция представляет собой рассказ в рассказе. Сначала автор повествует нам о «скуке пароходных ночей», а затем рассказывает о судьбе старого однорукого старика-капитана Шестакова. Нужно отметить, что рассказ начинается с описания скучной зимней ночи и заканчивается описанием синего зимнего рассвета, а в промежутке между ними выступает «второй» рассказ, действия которого разворачиваются осенней ночью.

Можно обратить внимание и на музыку в рассказе. В начале произведения автора притягивают к себе звуки рояля, за которым сидел старик Шестаков, он играл отрывок из «Пиковой дамы». Затем в рассказе появляется песня кочегаров :

«Матрос, забудь о небесах,
Забудь про отчий дом!
Чернеют дыры в парусах,
Распоротых ножом!» [5, с.466].

Эта песня, предвещавшая беду и несчастье, «вызывала тревогу» у лейтенанта Шестакова *«Эта нелепая песня, неизвестно откуда попавшая на миноносец, вызывала у Шестакова тревогу. Он боялся ее: когда кочегары запевали, он старался не слушать и всем существом ощущал близость несчастья. Так же было и теперь, во сне.*

– Отставить пение! – крикнул Шестаков – и проснулся…»[5, с.466]. Но в конце рассказа, когда автор просит еще что-нибудь сыграть, именно эту матросскую песню выбирает капитан Шестаков. Так, автор акцентирует своё внимание на торжестве Добра, это и есть лейтмотив всех микрорассказов К.Г.Паустовского[2, с.132].

Философско-эстетические взгляды К. Г. Паустовского обусловливают сходство поэтики художников, в частности, последовательное использование мотивов вдохновляющей природы и мотивов «творческого», подразумевающих наличие в образной системе художественного типа человека-творца; создание образов «естественных» героев, несущих идею включённости человека в естественную природную среду. Характерными особенностями сюжетной организации рассказов, новелл, очерков писателя становятся постоянные отсылки к теме творческого: цитирование художественных произведений; оценки произведений искусства, нередко переходящие в развёрнутое авторское рассуждение; сосредоточение внимания на деталях-артефактах: перо, ручка, томик стихов и т.п.; наблюдение за созданием, исполнением произведения и т.п[3.с.157].

К.Г.Паустовский, изображая в своих произведениях людей и человеческие жизни преследует и разрешает две неразрывно связанные друг с другом задачи:

1. Знакомит с закономерностями и различными проявлениями общественной жизни.
2. участвует в воспитании человеческих характеров.

Так писатель осуществляет свою великую миссию «инженера человеческих душ».

В наше время произведения К.Г.Паустовского воспринимаются как творческое свидетельство веры писателя в

торжество гуманности и социальной справедливости, веру в победу добра над жестокостью, чуткости над равнодушием.

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Issue Article

Husniddin Ibrohim o'g'li Azimjonov
Alisher Navo'i Tashkent state university of Uzbek language and literature
Uzbek language education faculty, 3nd year student
+998990051563
azimjonovxusniddin484@gmail.com

THE ANALYSIS OF SIMILAR STORIES (on the basis of Nazar Eshonqul's stories)

Abstract: *The world of images in various stories of Nazar Eshanqul is interpreted in a unique poetic way. Through this article we have identified that Nazar Eshonqul's stories are similar to each other. The aim of this article is to find out images such as darkness, gloom and others and to analyze the interpretations of these images based on Nazar Eshonqul's stories.*

Key words: *Nazar Eshanqul, traveling image, story, smell, ugliness.*
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Introduction

New processes, spiritual, formal and stylistic searches in prose are reflected in the stories of Nazar Eshanqul in a unique way, and it is not surprising that, as the writer himself says, he draws strength from the ancient literature created by our ancestors. Nazar Eshankul achieves the individualization of the image of a person living in society through spiritual analysis in each of his works. It is worth noting that in the writer's stories we observe a mixed synthesis of Western and Eastern methods of expression. According to the characteristic of expression, it shows attractiveness in harmony with the advanced methodological researches of the West, according to the content characteristic of the narrative tradition of Uzbek literature.

In the stories of Nazar Eshanqul, it is possible to see the unique types of character. In his stories, the writer put forward ideas such as glorification of human dignity, humanity and justice, friendship of peoples, and the role of people in society. In the works of Nazar Eshanqul, the relationship between the characters plays an important role in the solution of the main problem in the story or in the formation of the character traits of the main character.

The world of images in various stories of Nazar Eshanqul is interpreted in a unique artistic way. Of course, the attempt to create a gallery of images in their works is characteristic of almost all creative people. The writer's works include short stories and large works. Importantly, the meaningful life and creative activity of the writer were shown with all its diversity in these works. Nazar Eshanqul's creativity and work is a great ocean. To get to the bottom of it or to study and evaluate this writing is worth the lifetime of several generations. It serves not only for its the decoration of the reader, but also for its specific ideological and artistic purposes, for the future generation, for instilling the spirit of the times. This is the uniqueness of Nazar Eshanqul's poetics.

If we pay attention to the content and essence of Nazar Eshanqul's works, they are more sensitive, there are a lot of images of situations such as darkness and gloom, and these situations have created uniformity in some stories.

The title of the story "The Man Led by the Monkey" can be interpreted in two ways. A man leading a monkey or a monkey leading a man. In addition, it is vividly expressed that the writer appeals to the symbol not only in the title, but also in the plot. The main detail in the story is the dark forest in the

pictures painted by the old man, the image of a young man with fire in his eyes leading a monkey cuffed tightly around his neck, and at the end of the story, on the contrary, the monkey leads an old man into a dark forest. Image serves to reveal the essence of the whole work. These images essentially cover a number of symbols.

We can also think that the main character of the story "The Man Led by the Monkey", the artist is a logical continuation of the main character of the story "Coffin", the architect. Khurshid Dostmuhammad says, "In almost all of Nazar's works, "stinky smell" becomes a unique tool for exaggerating the mental state of the hero". The author skillfully used this image of smell in the story "The Man Led by the Monkey" to reveal the image of the old man's psyche: "The pillars and frames were rotten, and the yard generally smelled ugly and stinky. The ugly smell was coming from the trees, from the flower garden that was left in the snow and turned into a mess due to neglect, from the wood of the house and from the pile of all kinds of pictures lying on the porch: and the musty smell was coming from the garbage dump". The old man paints every day. It seems that this scene of the old man's daily life serves to reveal his character [1, p.34].

It is appropriate to study the issue of smell and color in the writer's artistic images separately. Black color and stench dominate the general image of Nazar Eshanqul's work. The author describes the stench in the story in such a detailed and impressive way that the reader does not notice how he got into that reality. There are many episodes related to darkness and night in the stories. The stories are similar to each other in terms of composition, idea, and images, moreover, one complements the other. It seems that the author uses this method to develop or complete the idea he wants to convey.

In order to reveal the psyche of a person, not only him, but also the external world and the scenes related to him play an important role. If this scene from the story "The Man Led by the Monkey" is a picture of the artist's room, then the picture from the story "Coffin" refers to the same smell in the city built by the architect: "More than anything, as soon as we enter the city, we smell the stench like the foul odor comes from the chief's breath. We were a bit surprised by a similar stench: in a city where ugliness, depravity, and body odor are mixed, it was as if the stench was spread on purpose to burn the noses of those who visited this place: I thought that such a stench could only be smelled in a grave". Nazra Ehsanul's story "Coffin" is based on a concentric subject and increases the interest of readers by focusing their attention on one point. In the story, the exposition of the work is illuminated through a small society, where entertainment, celebrations and performances have long been forgotten, all night, staring at death, walking in silence. The city has everything: houses, shops, schools and playgrounds. But the main thing is that there is no fresh air. There is damp air, a sickening stench, and a nauseating monotony.

At the same time, in Nazar Eshanqul's story titled "The Picture of a Ruined City", it can be noticed the same stench as the scenes from the above stories: "Looking at the picture, I always smelled the smell of smoke: maybe it seemed to me like that, but it was not the smell of ordinary smoke, I was like that I had smelled the acrid smell many years ago in the soot-soaked rifle of a group of hunters who came to our village chasing a wild bear, and the smell in the picture really resembled the smell of my just-exploded sleep: perhaps it appeared in my mind when I began to think that the city was destroyed after incredible betrayal and treachery?" [2, p.78].

Nazar Ehsanul's works have such a commonality that it is clearly visible in their titles. The story "The Picture of a Ruined City" is essentially a continuation of the story "Coffin". Complex psychological analysis dominates this story. In both stories, the former Soviet system, traces of its bloody politics, insouciance and stolidity among people can be seen. Fear, panic, anxiety, and death reign in it, and there are no smiles or open faces. The young man, who is the hero of the story, always thinks about the image of the city that appeared from somewhere. These dreams haunt him day and night, and when he tells his relatives, they laugh at him.

While reading the story "Photograph of a Ruined City", at first you will wonder why there is so much talk about only one photo. The story begins like this: "When did this picture appear in my room, how did it get there, to be honest, I don't remember exactly now, but. I flatter myself that I must have bought his painting from some poor artist, thin as a ghost and bald, sitting on the corner of the alley, and asking for alms from those who passed by". The young man still does not lose faith that the city shown in the photo existed. No matter who he turns to, they drive him crazy. The young man gave the city his own name: Tursoria. He tries to show people its beauty before its destruction and calls on people rebuild it. Carelessness and indifference are human degradation. His living without feelings, not understanding who he is and why he came to this world, like an animal only thinking about his stomach pain and his own peace, means moving away from humanity.

While reading the story, we can think a lot about what the author took the picture as a symbol of. For example, the city in the picture given in the story can be understood symbolically as a heart or, if not, as an appearance of a soulmate: "Anyway, Tursoria would make you terrified at first glance, but if you look at the flow of paints, you could see a red haze like a pupil over the hill where the stone walls of the city went".

The story "The picture of a Ruined City" is also significant because it shows the process of humanity's absorption into that decline and darkness. Many years

of deception made people like this. He raised him inseparable from the disgusting creature. At first glance, the city was depicted in an ugly and muddel way, and the stench was always strong. The only sign of life in the city was the old mill: "it seemed that only this mill was giving hope to this dead city" [3, p.22].

The way of the image, the style of expression and the symbols in the story were intended to reveal the essence of the former regime in its entirety, just like the story above: "These traces, which are as frightening as the traces of tyranny, chained the city from head to toe. Whose footprints, traces of a stone heart left by a man of stone, who hanged on the streets of this dead city, so that these traces will remain in the hearts of those whose eyes fell for a lifetime". The picture begins to attract the young man like a magnet, it becomes the meaning of his life. In any way, he tried to reveal the secret of this picture, to find information about it, but everything was in vain: "Just as they once migrated in the path of happiness and prospects, I, too, am wandering from the valley where the soulless dates and gods of my color lie, like I had to restore this ruined city, which was hanging on the wall of my heart like the ruins of my mind and perception, as if I had created my tomorrow, I had to set the stopped mill blade in motion". At the end of the story, it becomes clear that the lost young man is looking for his identity. That is, the shackles of that infamous system destroyed not only the states, but also the will and freedom of the individual, his consciousness, and its restoration is still ongoing. In the story, the author uses black paints to paint the image of the former regime.

The character "dead" can be added to the list of "traveling characters" in the author's stories. In the story "The picture of a Ruined City" the hero died in a mysterious way. The narrator searches for a way to his death. Although the details of this road seem imaginary and mystical, the writer analyzes the processes in the memory of the deceased together with the narrator. Many uses of "dead" and "death" images date back to myths. Not only in this story, but also in many other works of the writer, including stories such as "Dead Season", "Black Book", "Ajr", "Coffin", "You Can't Catch the Wind" the images of "dead" and "death" are presented.

In short, Nazar Eshanqul entered literature with his first stories as a professional writer, not an amateur writer. His stories make it possible to look at the issue from different angles and encourage the reader to think. The writer has created stories about different aspects of life and characters of different categories of people. Each hero remains a true hero for his environment, his field, his loved ones, and the reader. The stories of this writer, along with most of his works, are connected to the environment of his childhood, or in general, it can be imagined as a clear evidence of the life path of the Uzbek nation.

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Issue Article

Osuagwu Chidimma Udo
Federal University of Technology
Department of Statistics,
Owerri, Imo State, Nigeria

Opara Pius Nwaogu
Imo State Polytechnic
Department of Mathematics and Statistics,
Omuma, Imo State, Nigeria

THE EFFECT OF HETEROGENEITY OF VARIANCE DATA ON PARAMETRIC AND NONPARAMETRIC REGRESSION MODELS

Abstract: *This study examined the effect of heterogeneity of variance data on parametric regression (OLS) and nonparametric regression (quantile regression- QR) models. The study was first subjected to heterogeneity of variance test via Breusch-Pagan-Godfrey technique, and it was revealed that there was existence of heterogeneity of variance in the data employed for the study. The multiple regression model of five explanatory variables, viz: shoulder width, elbow height, sitting height, arm length and age and the response variable (cholesterol) was first fitted with the adjusted coefficient of determination of 70.1% with the AIC being 26.245, as well as the quantile regression whose adjusted pseudo together with AIC are:* $(0.523, 13.745)$, $(0.375, 32.911)$, *and* $(0.558, 18.314)$ *for 25%, 50% and 75% respectively. The AIC agreed with the fact that the QR model was the best over the OLS model when there is presence of heterogeneity of variance in the data. The stepwise regression revealed that only three predictor variables (elbow height, age and shoulder width) were significantly related to the response variable at 5% level of significance. Comparison of parametric and nonparametric regression as the number of predictor variable increased to two and three also detected the presence of heterogeneity of variance, which gave QR advantage over OLS via their AIC values.*

Key words: *Parametric Regression, Nonparametric Regression, heterogeneity of variance, Pseudo-Values, AIC.*

Language: *English*

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Introduction

One of the main objectives of a parametric regression analysis in classical form is to set up an association between a dependent and explanatory variable. Regression analysis in classical form makes use of the mean and as well a function which suggests the conditional mean of the dependent value in respect of any constant predictor variable (Gürsakal et al, 2016).

Parametric regression analysis in classical form is problem free when its hypotheses are proven in an ideal condition. According to Jalali and Babanezhad (2011), these hypotheses are not always conformable to the real world, and as a result could lead to presence of outliers and heavy tailed distributions. An approach in general in regression analysis in classical form is to detect the outliers, and thereafter expunge them, which results in loosing valuable data points. Nonparametric regression also known as Quantile regression (QR) to be examined in this study, on the other hand gives a clearer comprehension of presence of outliers at the end of the tails of the distribution instead of expunging them. This condition proves effectiveness of the nonparametric quantile regression over the regression analysis in classical form (Giambona & Porcu, 2015). According to Koenker

(2005), QR is a robust approach of regression which neglects residual terms for the normal distribution, which is a more appropriate approach to handle such a condition.

According to Pan and Leu (2016), QR is best implemented in situations when the conditional quantiles reflect variations. In regression analysis, heterogeneity of variance is a situation where the variance error is not constant within all observations, where as it should be homoscedastic in agreement with one of the assumptions of OLS, this gives QR an advantage over OLS when there is presence of heterogeneity of variance in the data set (Draper & Smith, 1998).

2. Materials and Methods

2.1 Multiple Linear Regression Model

Assuming there are p variables for prediction of Y, the dependent variable (Faraway, 2002). The p explanatory variables are labeled $Z_1, Z_2, \cdots, Z_p$, the stages of these variables for the ith case is denoted Z_{1i} ,..., Z_{pi}.

$$E(Y/Z) = \phi_o + \phi_1 Z_1 + \phi_2 Z_2 + ... + \phi_p Z_p + \varepsilon \quad (1)$$

2.2 ANOVA Table for Regression Analysis

Table 1: Analysis of variance (based on p predictor variables)

Source	*df*	*SS*	*MS*	*F*
Re*gression*	df_R	SS_R	$MS_R = SS_R / p$	$F_{obs} = MS_R / MS_E$
Error	df_E	SS_E	$MS_E = SS_E /(n-p-1)$	
Total	df_T	SS_T	...	...

Sum of squares for total and df: $SS_T = \sum_{i-1}^{n}(Y_i - \bar{Y})^2 \quad df_T = n-1$

Sum of squares for regression: $SS_R = \sum_{i-1}^{n}(\hat{Y}_i - \bar{Y})^2 \quad df_R = p$

Sum of squares for error: $SS_E = \sum_{i-1}^{n}(Y_i - \hat{Y})^2 \quad df_E = n-p-1$

2.3 Multiple Coefficient of Determination(R^2)

The R^2 is given as;

$$R^2 = \frac{\sum_{i=1}^{n}(\hat{Y}_i - \bar{Y})^2}{\sum_{i=1}^{n}(Y_i - \bar{Y})^2} = \frac{SS_R}{SS_T} = 1 - \frac{SS_E}{SS_T} \quad (2)$$

The R^2 adjusted represented as, R_a^2 is defined by

$$R_a^2 = 1 - \left(\frac{n-1}{n-p}\right)\frac{SS_E}{SS_T} \quad (3)$$

2.4 Quantile Regression

The general quantile regression model according to Buchinsky (1998) is as follows:

$$y_i = z'\phi_\lambda + \varepsilon_{\lambda i}, i = 1,2,...,n \quad (4)$$

Where:

y_i denotes the response variable and the λth quantile $(0 < \lambda < 1)$ of the conditional distribution of y_i is a linear function of a $p \times 1$ vector of explanatory variables, z_i and an unknown error term $\varepsilon_{\lambda i}$; ϕ_λ is the unknown parameters of regression in vector form which is connected with percentiles. The conditional quantile function can be expressed as $Q_\lambda\left(y_i / z_i\right) = z'\phi$. The quantile regression minimizes a sum which produces the asymmetric penalties $\lambda|\varepsilon|$ for under-prediction and $(1-\lambda)|\varepsilon|$ for over-prediction. The quantile regression estimator $\hat{\phi}_\lambda$ minimizes over ϕ the objective function

$$Q(\phi_\lambda) = \min_{\phi_\lambda}\left\{\sum_{y_i \geq z'\phi_\lambda} \lambda|y_i - z'\phi_\lambda| + \sum_{y_i \leq z'\phi_\lambda}(1-\lambda)|y_i - z'\phi_\lambda|\right\} \quad (5)$$

The study considers three quantile regressions at the 25th, 50th and 75th quantiles; where λ is called the regression quantile, $0 < \lambda < 1$.

2.5 Computing QR using Two -Variables Problem

The two-variable problem for L_1 criterion for minimization is given by:

$$\sum_{i=1}^{n} \left| \phi_0 + \phi_1 z_i - y_i \right| \tag{6}$$

The resulting linear program is:

$$\left.\begin{aligned} &\min imize \sum_{i=1}^{n} \varepsilon_i \\ &Subject\,to: \varepsilon_i \geq \phi_0 + \phi_1 z_1 - y_i, \; i = 1,2,\cdots,n \\ &\qquad\quad \varepsilon_i \geq -(\phi_0 + \phi_1 z_1 - y_i), \; i = 1,2,\cdots,n \end{aligned}\right\} \tag{7}$$

Each ε_i is an auxiliary variable. The constraints guarantee that:

$$\varepsilon_i \geq \max\left\{\phi_0 + \phi_1 z_i - y_i, -\left(\phi_0 + \phi_1 z_1 - y_i\right)\right\} = \left|\phi_0 + \phi_1 z_i - y_i\right| \tag{8}$$

To evaluate the L_1 regression case, it requires to evaluate the equivalent linear programming problem (Gürsakal et al, 2016).

2.6 QR Goodness of Fit

In the simplest form of regression equation with one independent variable

$$Q_\lambda(\hat{y}/z) = \hat{\phi}_0(\lambda) + \hat{\phi}_1(\lambda) z \tag{9}$$

The error absolute sum of weighted differences is the associated minimizer

$$EASW_\lambda = \sum_{y_i \geq V} \lambda \left| y_i - \hat{\phi}_0(\lambda) - \hat{\phi}_1(\lambda) z_i \right| + \sum_{y_i \geq V} (1-\lambda) \left| y_i - \hat{\phi}_0(\lambda) - \hat{\phi}_1(\lambda) z_i \right| \tag{10}$$

Where $V = \hat{\phi}_0(\lambda) + \hat{\phi}_1(\lambda) z_i$

The total absolute sum of weighted differences between the observed dependent variable and the estimated quantile according to Koenker & Machado (1999) is by:

$$TASW_\lambda = \sum_{y_i \geq \lambda} \lambda \left| y_i - \hat{\lambda} \right| + \sum_{y_i < \lambda} (1-\lambda) \left| y_i - \hat{\lambda} \right| \tag{11}$$

The obtained *pseudo* R^2 is evaluated using:

$$pseudo \;\; R_\lambda^2 = 1 - \frac{EASW_\lambda}{TASW_\lambda} \tag{12}$$

$EASW_\lambda < TASW_\lambda$, the $pseudo\ R_\theta^2$ runs from 0 to 1(Hao & Naiman, 2013).

1. Results

3.1 Testing for Heterogeneity of Variance

The hypotheses of the Breusch-Pagan-Godfrey test are as follows:

Table 3: Test for Heterogeneity of Variance

F-stat.	12.189	Prob. F(5,44)	0.000
Obs*R^2	29.037	Prob. Chi-Square(5)	0.000

Table 3 shows that heterogeneity of variance does seem to be a problem since the p-value (0.000) is lower than 0.05. Hence, the null hypothesis is rejected in testing for heterogeneity of variance.

3.2 QR and OLS Regression

Table 4: QR Model

	QR					
	25%		50%		75%	
Parameter	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.
Constant	171.037	0.000	169.415	0.000	169.859	0.000
Shoulder Width	-4.524	0.004	-3.676	0.037	-0.072	0.956
Elbow Height	2.995	0.001	3.839	0.000	2.708	0.002
Sitting Height	0.384	0.464	0.302	0.261	0.127	0.622
Arm Length	-0.007	0.995	0.819	0.459	-0.068	0.946
Age	-0.020	0.068	-0.023	0.004	-0.019	0.006
	$R^2_\lambda = 0.572$		$R^2_\lambda = 0.439$		$R^2_\lambda = 0.603$	
	$Adj.\ R^2_\lambda = 0.523$		$Adj.\ R^2_\lambda = 0.375$		$Adj.\ R^2_\lambda = 0.558$	
	$AIC = 13.745$		$AIC = 32.911$		$AIC = 18.314$	

Table 5: OLS Regression Model

Parameter	Coef.	Std. Error	t-stat	Prob.
Constant	169.473	1.383	122.541	0.000
Shoulder Width	-1.978	0.857	-2.309	0.026
Elbow Height	3.188	0.484	6.581	0.000
Sitting Height	0.272	0.214	1.268	0.212
Arm Length	0.234	0.826	0.283	0.778
Age	-0.016	0.004	-3.459	0.001
$R^2 = 0.731\ Adj.\ R^2 = 0.701$				
$AIC = 26.245$				

Table 4 reveals the outputs of fitting a quantile regression model to explain the association between cholesterol and five anthropometric measurements. The Akaike Information Criterion (AIC) for QR (25%), QR (50%) and QR (75%) are 13.745, 32.911 and 18.314 respectively. The fitted model is

$$Cholesterol = 171.037 - 4.524\ Shoulder\ width + 2.995\ Elbow\ height + 0.384\ Sitting\ height - 0.007\ Arm\ length - 0.020 Age$$

Table 5 reveals the outputs of fitting a regression model with multiple predictor variables to explain the association between cholesterol and five anthropometric measurements. The fitted model is

$$Cholesterol = 169.473 - 1.978\ Shoulder\ width + 3.188\ Elbow\ height + 0.272\ Sitting\ height + 0.234\ Arm\ length - 0.016 Age$$

It has been noticed that the largest p-value on the predictor variables is 0.778 in examining the simplification of the model which belongs to arm length, and since it is greater than 0.05, then arm length is not statistically significant at 95.0% or higher confidence level. We consider expunging it from the model and conduct a stepwise regression. The Akaike Information Criterion (AIC) is 26.245. Considering the values of AIC, it was observed that the quantile regression model is more adequate to explain the

association between the response variable and the five independent variables.

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Table 6: Stepwise Regression

Parameter	Coef.	SE	t-stat	Prob
Constant	170.515	0.801	212.871	0.000
Elbow Height	2.818	0.374	7.529	0.000
Age	-0.017	0.004	-3.899	0.000
Shoulder Width	-2.088	0.838	-2.493	0.016

Table 6 displays the summary of the output for a stepwise regression model for the association between cholesterol and the anthropometric measurements. The fitted model is

$$Cholesterol = 170.515 + 2.818\ \text{Elbow Height} - 0.017\ Age - 2.088\ ShoulderWidth$$

Since the p-values of all the predictor values are less than 0.05, it indicates significant association statistically between the variables at 5% level of significance. The coefficient of determination value shows that the fitted model explains 72.2% of the variability in cholesterol, while the adjusted coefficient of determination value, which is more appropriate for comparing models with different number of predictor variables is 70.3%. Hence, there is no need to further simplify the model since the largest p-value amongst the predictor variable is 0.016 corresponding to Shoulder Width, which is significant. There is no need to expunge any variable from the model.

3.3 Comparison of OLS and QR with Increase in Variables

Table 7: Numerical Result of the OLS and QR Simple Linear Models

			QR					
	OLS		25%		50%		75%	
Parameter	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff	Prob
Constant	167.862	0.000	168.250	0.000	167.303	0.000	168.595	0.000
Elbow Height	3.440	0.000	2.917	0.001	3.871	0.000	3.095	0.000
	$R^2 = 0.602$		$R^2_\lambda = 0.389$		$R^2_\lambda = 0.300$		$R^2_\lambda = 0.404$	
	$Adj.\ R^2 = 0.593$		$Adj.\ R^2_\lambda = 0.377$		$Adj.\ R^2_\lambda = 0.286$		$Adj.\ R^2_\lambda = 0.392$	

Table 7 shows the summary output of fitting the OLS regression in line with that of quantile regression. The estimated coefficient for the elbow height reveals a positive and significant relationship on cholesterol as a measure of health. However, the normality test for the residual using the Anderson-Darling statistic (0.026) shows that it is not normally distributed. This definitely leads to OLS estimates being inappropriate to employ, thereby giving the quantile regression a great advantage since quantile regression does not assume normally distributed errors for the estimation of the coefficients, whereas OLS does for simple linear regression.

Table 8: Numerical Result of the OLS and QR Models with Two Predictor Variables

			QR					
	OLS		25%		50%		75%	
Parameter	Estimate	p-value	Estimate	p-value	Estimate	p-value	Estimate	p-value
Constant	169.047	0.000	168.697	0.000	168.723	0.000	170.631	0.000
Elbow Height	3.094	0.000	2.955	0.001	3.368	0.001	2.222	0.001
Age	-0.016	0.001	-0.011	0.440	-0.016	0.035	-0.021	0.000
	$R^2 = 0.684$		$R^2_\lambda = 0.406$		$R^2_\lambda = 0.377$		$R^2_\lambda = 0.588$	

	$Adj.\ R^2 = 0.670$	$Adj.\ R_\lambda^2 = 0.381$	$Adj.\ R_\lambda^2 = 0.351$	$Adj.\ R_\lambda^2 = 0.571$
	$AIC = 28.376$	$AIC = 40.487$	$AIC = 37.348$	$AIC = 15.887$

Table 8 shows the summary output of fitting the multiple linear regression in line with that of quantile regression. The estimated coefficient for the elbow height reveals a positive and significant relationship on cholesterol as a measure of health, while age has significant negative effect on cholesterol. However, Breusch-Pagan-Godfrey for heterogeneity of variance shows that heterogeneity of variance is present in the data with a p-value of 0.001. This definitely leads to OLS estimates being inappropriate to employ, thereby giving the quantile regression a great advantage since quantile regression does not assume homoscedasticity presence to be achieved. Quantile regression improves the efficiency of the estimators compared to OLS and allows analyzing it independently. Considering the values of AIC, it also proved that the quantile regression model is more appropriate to explain the association between the dependent variable and the five independent variables.

Table 9: Numerical Result of the OLS and QR Models with Three Predictor Variables

			QR					
	OLS		25%		50%		75%	
Parameter	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
Constant	170.515	0.000	171.010	0.000	172.065	0.000	170.631	0.000
Elbow Height	2.818	0.000	2.850	0.000	2.920	0.000	2.222	0.000
Age	-0.017	0.000	-0.020	0.252	-0.031	0.003	-0.021	0.001
Shoulder Width	-2.088	0.016	-3.435	0.065	-4.188	0.024	-0.000	1.000
	$R^2 = 0.722$		$R_\lambda^2 = 0.524$		$R_\lambda^2 = 0.419$		$R_\lambda^2 = 0.588$	
	$Adj.\ R^2 = 0.703$		$Adj.\ R_\lambda^2 = 0.493$		$Adj.\ R_\lambda^2 = 0.381$		$Adj.\ R_\lambda^2 = 0.562$	
	$AIC = 24.039$		$AIC = 20.420$		$AIC = 32.466$		$AIC = 17.887$	

Table 9 shows the summary output of fitting the multiple linear regression in line with that of quantile regression. The estimated coefficient for the elbow height reveals a positive and significant relationship on cholesterol as a measure of health, while age and shoulder width have significant negative effect on cholesterol. However, Breusch-Pagan-Godfrey for heterogeneity of variance shows that heterogeneity of variance is present in the data with a p-value of 0.000. This definitely leads to OLS estimates being inappropriate to employ, thereby giving the quantile regression a great advantage since quantile regression does not assume homoscedasticity presence to be achieved. Quantile regression improves the efficiency of the estimators compared to OLS and allows analyzing it independently. Considering the values of AIC statistic, it also proved that the quantile regression model is more appropriate to describe the relationship between the dependent variable and the five predictor variables.

4. Discussion

The data set of the study was first subjected to heterogeneity of variance test via the Breusch-Pagan-Godfrey statistic and the result revealed that heterogeneity of variance was present in the data since the p-value is 0.000. The model for both the OLS and QR were fitted using the result of Tables 4 and 5. In determining whether the model of the OLS could be simplified, it was noticed that the largest p-value on the predictor variables is 0.778 which belongs to arm length, and since it is greater than 0.05, then arm length is not statistically significant at 95.0% or higher confidence level. We considered expunging it from the model and conduct a stepwise regression. Again, the Akaike Information Criterion (AIC) for OLS is 26.245. Considering the values of AIC, it was observed that the quantile regression model is more appropriate to explain the association between the response variable and five predictor variables. The OLS and QR were compared as the number of variable increases to two and three and it was discovered the there were presence of heterogeneity of variance via Breusch-Pagan-Godfrey; hence; giving the quantile regression a great advantage since quantile regression does not assume homoscedasticity presence to be achieved. The Akaike Information Criterion (AIC) result also proved the QR model is appropriate over the OLS model.

5. Conclusion

The study concluded that non-parametric quantile regression is better employed especially when there is presence of non-constant residual terms

which violated the major assumption of OLS (homoscedasticity).

6. Recommendations

Based on publicly available dataset on cholesterol and anthropometric dimensions of patients, quantile regression model outperforms the OLS method based on the AIC values. It is recommended that future researchers should still employ the nonparametric quantile regression when important assumptions associated with OLS hold. Again, since the data set employed in this study is a real life situation, simulation of data of different sample sizes (violated and non violation of assumptions) should be looked at by future researchers.

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Issue Article

Sevara Toxirjon Qizi Shakirova

Alisher Navo'i Tashkent state university of uzbek language and literature

Republic of Uzbekistan

DESIGNING THE GRAPHIC DESIGN OF PUBLICATIONS

Abstract: *The article discusses the process of designing the graphic design of publications, its stages, and the effectiveness of the methods used in the publication process.*

Key words: *Graphic design, book, design, text block.*

Language: *English*

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Introduction

In higher educational institutions of the world, importance is attached to the introduction of innovative technologies, quality education based on modern information technologies, and the implementation of improved teaching methods in the training of specialists. In the multidisciplinary coalition of UNESCO, "ensure continuity and coherence between educational stages in the teaching of specific subjects in accordance with current trends in education (informatization of education, innovative technologies, person-oriented education), modern education Special attention is paid to the issues of implementing educational programs and technologies into the educational process, increasing the effectiveness of education using the possibilities of high-level information technologies.

To date, research has been carried out in the publishing system on various issues of improving the process of designing the graphic design of publications. The design of graphic publications and the book, on the technique of preparing the verstka of textbooks Robert Morrison, Brian Wood, Robert Shufflebotham, Kelly Anton, D.Wyse, Curtis Campbell, Ernest Woodruff, Jonathan Gordon, Rob Schwartz, book and Textbook cover design, font use issues V.P.Molochkov, Yu.E.Pavlov, I.R.Lukyanovich, Leonid Levkoves research on the tools that help in the successful release of the book Z.Tohirov, R.Atamuratov, M.Aripov, B.Begalov, among others, is reflected in his research. In the implementation of our work, these studies serve as a theoretical and methodological basis.

Also, collections of articles published by the Department of Computer Linguistics and Digital Technologies of TSUULL named after Alisher Navoi, materials of republican and international scientific-practical conferences organized by this department, as well as research conducted by representatives of the publishing industry in scientific journals published in our republic is lit regularly.

Books are generally judged by cover. But in the successful release of the book, not only the cover of the book, but also its internal structure, layout are of great importance. The proportional placement of images, the choice of alternative fonts and the use of colors in harmony further increase the responsibility of designers.

Naturally, a bright, attractive cover is not enough. As the world-famous typeface designer Erik Spiekermann says, a book with a great cover, but an interior design - a mockup done at the tip of your hand - is like a bland meal in a fancy box. The ugliness of the box may whet your appetite, but you can't fill your stomach with the bland food inside. A book with a well-made cover and an interior design that is not as good as expected will leave consumers hungry. Designing a book design is actually a long process. Initially, after the designer is assigned to design the book, he is given brief information about the main content and main idea of the book.

Graphic designer and art director Maximilian Mauracher says: "The better the content and images of

any book are understood, the easier it is to arrange and size them." Of course, first the book taken into the project is carefully studied, and then a beautiful book model is created by designing according to it. However, it does not end there, a successful design and layout alone is not enough to make a book of high quality. Maybe CMYK format will be used before the book is published, and the page layout will be checked and published so that the quality of the colors will be preserved after the publication. Meanwhile, book covers usually go through a series of meetings with the editor, sales and marketing teams, designers, and ultimately the author before being approved.

Henry Petrides, designer of Cornerstone, part of Penguin Random, had his say: “As a designer, it can be a bit intimidating to hear so many opinions, but I often find that this is the way I think. I thought it would open the way." Therefore, working on the text of the book, which has undergone a number of considerations, also requires a unique process. First of all, the role of the text and its constituent words and fonts is incomparable in the successful release of the book and finding its readers. Usually, when choosing fonts, simple, unobtrusive, easy-to-read typefaces are chosen. Because when a student reads a book, he pays attention to the words, not the fonts.

In terms of legibility, some scientists favor Serif and San-serif typefaces, while some other studies show the opposite. Therefore, choosing a font according to the type of the book and the target audience in the design is an optimal option in every way.

Maucher, one of the experts, also preferred the easy-to-read option when choosing a font. He always followed the motto "excellence in simplicity" when choosing a font, and he used to use fonts that are easy and fast to read when the reader reads. He says: "There are many beautiful fonts that I like, but before I choose them, I consider whether they fit the essence of the book and choose the best ones."

A book layout that comes out successfully in all directions goes through two important steps: typing (font, category size, space between rows and dash breaking lines) and layout (edges, columns, pictures and graphs). Among these are the blocks of text that are most desirable for writing text. Most designers make extensive use of the main 4 of these. These are:

1. **A manuscript block** is a rectangular block of text adapted for large texts.
2. **Table block**-used to place statistics and work with short data, prepare reports or cite fact data in the book itself.
3. **A modular block** is a block of text that has a certain arrangement to organize a series of complex data and images popularized by the Swiss international style and Bauhaus school.
4. **Hierarchical block** - more often used online than in print, where the width of the columns varies and the designer has to combine a number of different elements.

But before choosing the font and placing the text, it is necessary to determine the appropriate page size for the book. If the book is more than 250 pages, small trim sizes (5x8 or smaller) will suffice. In the case of poetry books, a wider format is chosen so that the lines are not interrupted.

The next thing to accept is – fonts. Books are traditionally used in design in serif typefaces such as Garamond, Caslon, Baskerville and Goudy, but books in manuals, fiction-literary, culinary and other genres use sans-serif for modern sense and ease of reading. Regardless of which Font to choose, it is necessary to make sure that it is readable and suitable for book layouts. It also takes into account the presence of italics, semi-bold, bold and small initials. For example, fonts in commercial books (such as thrillers and mysteries) are usually slightly larger because their readers are often older. The convenient size for most books is 11pt font. Also, not always multi-page books are cheap and marketing-wise will not be more agile to sell than other books. For this reason, increasing the number of rows on Pages is the best option, instead of increasing the page.

It is also worth noting that when designing a book, placing text and images without leaving space is the biggest mistake. The fact that the edges of the page remain looser and freer is the impetus for the successful release of the book. When the designer completes the design of the book, he must also take control of its release. Book printing is the process of transferring written content from an author or publisher to a publication form. There are four main stages in the process of printing a book: pre-printing, post-printing, and compounding. The pre-press stage ensures that all pages are in order, including the necessary changes or adjustments to the design.

Conclusions

In conclusion, in the design of the book design, the identification of its audience is the main place. It is advisable to make a book design using the correct identification of the audience. If the book is named after children, then the fonts used are required to be in size, mostly larger, and the colors are also brighter. For example, fonts such as Catchy Melody, Paymon regular, Little Monster, Dino Kids, Awesome Daisy are used precisely for works in children's literature. If, on the contrary, the book is read by older people, then it is better to use Verdana and Kirimomi display fonts. Because these fonts are not eye-catching, even if they are the smallest size when reading online books, the level of readability does not decrease. Also, their covers are the most important in book design. In many cases, readers focus on the cover when buying a book and buy beautiful cover books. Therefore, when designing any books, it is necessary to make the cover beautiful, eye-catching. For example, bright colors are

used on the book cover, images with taste are placed, while the title on the cover attracts the reader, such a book will not be left out of the eyes of readers.

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