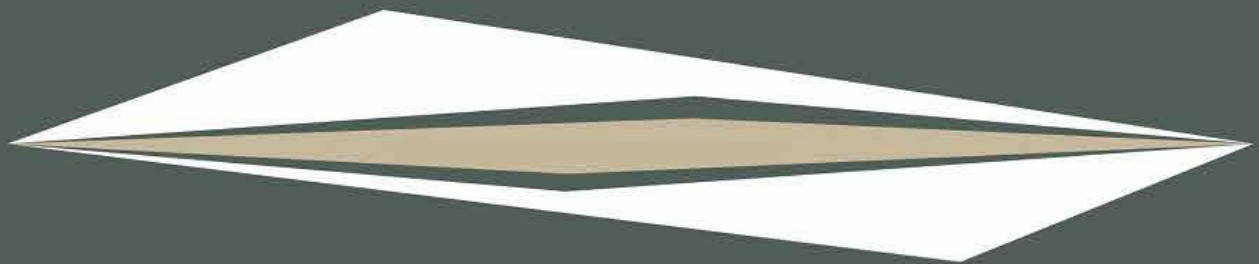


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"History, Problems and Prospects
of Development of Modern Civilization"



(Japan, Tokyo, 25-27 January 2016)



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SECTION 3

Architecture, Technologies & Engineering

Ali Salameh Khraiwish Dalabeeh

and Anwar AL-Mofleh,

Department of Electrical Engineering,

Faculty of Engineering Technology,

Al-Balqa' Applied

University Amman, Jordan Amman,

Marka Ashamalia, Jordan

Modeling of a High Performance Grid Connected Photovoltaic System

1. INTRODUCTION

Solar energy provides the opportunity to develop electric energy from clean, endless, and green energies [1,2]. A PV cell is a basic unit that generates voltage in the range of 0.5 to 0.8 volts depending on cell technology being used [3,4]. Therefore the solar cells are connected in series and parallel in order to create a solar module depending on the capacity demands [5]. Regardless of the intermittency of sunlight, solar energy is widely available and completely free of cost [6-8]. The efficiency of the PV cells is quite dependent to the environmental and operational conditions. The output power of the PV systems affected by solar radiation, ambient temperature, and sand (dust, clouds, shading, etc.) [9,10]. The cell conversion ranges from 12% up to a maximum of 29% for very expensive units [11,12]. So to extract the maximum possible power from a PV system, tracking the single maximum power operating point is very important to raise the efficient operation of the PV system, and so, MPPT is one of the most important issues in PV system [13,14]. MPPT methods are various and they differ in terms of complexity, speed of response, and cost [15,16,17,18,19]. A popular method of perturb and observe (P&Q) based on a boost converter as MPPT device is considered in this paper.

In the last few years, the demand for electrical power in Jordan has increased significantly due to developments in the industrial sector and people's standard of living conditions. Solar energy can cover these conditions in the future, and achieve great results due to the location of the Kingdom and the large desert areas. The demand for solar energy, globally, has increased by 20% to 25% over the past 20 years [20]. The electrical system powered by solar arrays requires special design considerations due to the varying nature of the solar power generated resulting from unpredictable and sudden changes in weather conditions, which change the solar radiation level as well as the cell operating temperature. A PV array is interfaced with DC/DC converter to obtain the desired DC voltage by utilizing Maximum Power Point Tracking (MPPT) technique to extract the maximum power, which is converted to alternating current (AC) by an inverter.

The nonlinear output PV characteristics, Power-Voltage (P-V) and Current-Voltage (I-V), are affected by the solar radiation and the temperature. The PV system should always operate so as to extract the maximum power under the variations of solar radiation, while the environment temperature supposed to be maintained at nominal value (25°C), therefore the PV current only depends on solar radiation. The time, required, to reach MPP under variable conditions has to be analysed to evaluate the performance of the PV system [21,22].

2. PHOTOVOLTAIC SYSTEM MODELLING

2.1 PV Cell Model

A mathematical description of current - voltage terminal characteristics for PV cells is available in the literature. The single exponential equation (1) which models a PV cell is derived from the physics of the PN junction and is generally accepted as reflecting the characteristic behavior of the cell [7].

$$I = I_{ph} - I_s \left\{ \exp \frac{q(V+R_s I)}{NKT} - 1 \right\} - \frac{CV+R_s I}{R_{sh}}, \quad (1)$$

where:

I_{ph} : represents the current generated by the photons (it will be constant if the radiation and the temperature are constants too). The photon generated current will flow out of the cell as a short-circuit current (I_{sc}),

I_s : is the panel dark saturation current, in A, which depends strongly on temperature q : I_s is the electron charge (1.602×10^{-19} C),

V : is the voltage across the diode (V),

K : is the Boltzmann's constant (1.381×10^{-23} J/K),

T : is the working temperature of the cell, in Kelvin,

N : ideality factor of the diode,

R_s : is the series resistance in ohm, which models the ohmic losses,

R_{sh} : is the shunt resistance, in ohm, which represents the current leakage.

From the equations, an equivalent circuit can be easily determined, and this aids in the development of the simulation model. This equivalent circuit model is shown in Fig. 1. It includes a current source, a diode, a series resistance and a shunt resistance.

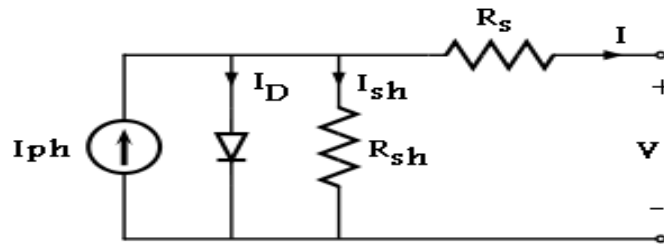


Fig. 1. PV cell equivalent circuit

2.2 The Influence of Solar Irradiation Variation

Based on the above equation, the subsystem of Fig. 1 is obtained. The above model includes two subsystems: one that calculates the PV cell photocurrent which depends on the radiation and the temperature [23].

$$I_{ph} = [I_{sc} + K_i(T - 298)] \frac{G}{1000}, \tag{2}$$

where $K_i = 0.0017$ A/C0 is the cell's short circuit current temperature coefficient and G is the solar radiation (W/m^2).

2.3 The Influence of Cell Temperature Variation

Like all other semiconductor devices, solar cells are sensitive to temperature, Increase in temperature, reduce the band gap of a semiconductor, thereby effecting most of the semiconductor material parameters. In a solar cell, the parameter most affected by an increase in temperature is the open-circuit voltage. Panel temperatures in the summer in warm climates can easily reach 50°C resulting in a 12% reduction in output compared to the rated output at 25°C. To calculate the exact percentage of losses due to the difference of temperature in Jordan. For the PV module selected in section below (Kyroce KD235XL) the temperature confection for voltage is $(-1.33 \times 10^{-1} \text{ V}^\circ\text{C})$ and for current is $(5.13 \times 10^{-3} \text{ A}/\text{CO})$.

The Jordan ambient temperature is about 45CO so it's greater than the STC (standard test conditions) value by 20°C. By calculating the value of the reduction in voltage and current the expected effect of temperature is about 1% of losses in power. The diode reverse saturation current varies as a cubic function of the temperature and it can be expressed as [23]:

$$I_s(T) = I_s [T/T_{nom}]^3 \exp [(T / T_{nom} - 1)E_g / (N \cdot V_t)], \quad (3)$$

where:

I_s is the panel dark saturation current, in A,

T_{nom} is the nominal temperature, equals to 300 K,

E_g is the band gap energy of the semiconductor,

V_t is the thermal voltage.

When there is no connection to the PV cell (open circuit), the photon generated current is shunted internally by the intrinsic p-n junction diode, this gives the open circuit voltage (V_{oc}).

In general, for a given solar radiation, when the cell temperature increases, the open circuit voltage V_{oc} , drops slightly, while the short circuit current increases. Figs. 2 and 3 show temperature effect.

2.4 The Influence of Dust and Sands

Dust, Sands, clouds, and snow decrease solar panel efficiency. For our reign in Jordan as Mediterranean climate high altitudes require high tilt in a PV system. A lower fixed tilt angle is recommended to optimize year-round solar. Gain dust generally

tends to fall off with the increase in the tilt angle. The reign of Jordan is almost clear and not dusty or windy so the effect of the dust and soil can be reduced when using a fixed (manual change) title angel is about 3-4%.

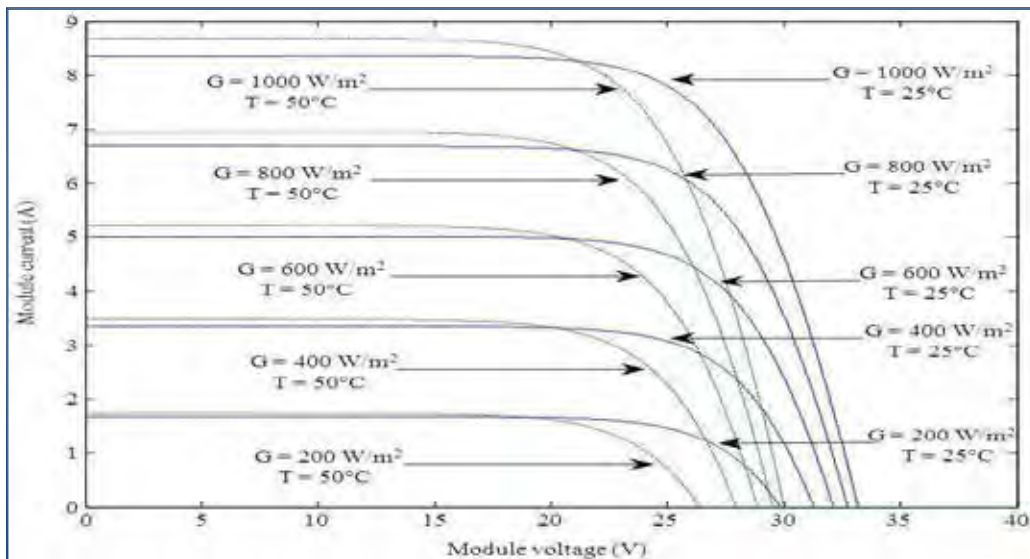


Fig. 2. The I-V characteristic for 25°C and 50°C

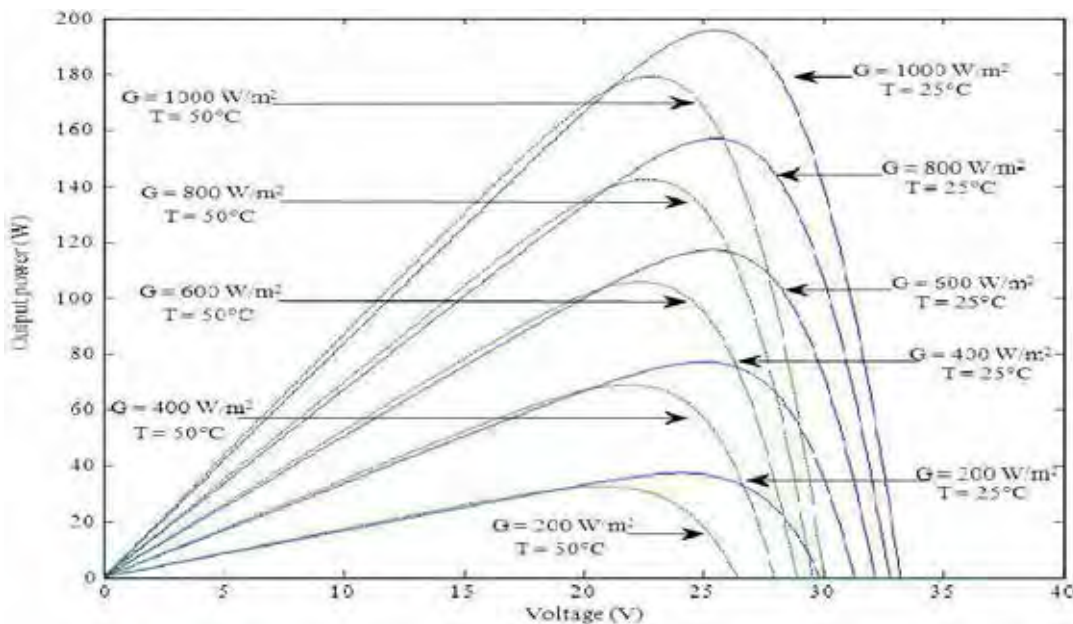


Fig. 3. The P-V characteristic for 25°C and 50°C

2.5 Boost Converter with MPPT Controller and the Voltage Sourced Converter

A DC-DC power, converter boosts the DC power from one voltage level to another higher or lower to the input voltage, has to be added at the output of the

photovoltaic array to achieve the optimum voltage and to implement the Maximum Power Point Tracking (MPPT).

$$V_o = V_{in_j} / (1 - D), \quad (4)$$

where V_{in} is the input voltage (output voltage of PV array), V_o is the output voltage and D is the duty ratio of controllable switch. With the boost topologies the output voltage could be higher than input voltage. And can vary from 0 to 1, although there is no practical value of D equal to 1 due to voltage limitation issues Fig. 4. Is the configuration of the boost circuit and its control system [10]. In the detailed model, the DC-DC converter boosts DC voltage from 273.5 V to 500 V. Basically, the module current is perturbed by a small increment, and the resulting change in the power is observed. A simple updating algorithm is given as follows: The terminal voltage V and current I of PV arrays are first measured and PV power P is therefore obtained from the product of V and I . If the maximum power point P_m is the demarcation point, when $V(k) > V(k-1)$, if $P(k) - P(k-1) > 0$, then the solar cell works in the left section of the curve. To make the operating point close to the maximum power P_m point, need to continue to increase the output voltage V ; In contrast, $V(k) > V(k-1)$, if $P(k) - P(k-1) < 0$, then the solar cell works in the right part of the curve, in order to make the operating point near the point of maximum power P_m , require to reduce the output voltage V . With this control algorithm, the operating point of PV arrays can move toward the maximum power point corresponding to different temperature and irradiance. In order to suit the frequency and voltage level requirement of the load, a suitable switching power inverter is used. PV array is connected to the AC grid via a common DC/AC inverter. The inverter is used in current control method with PWM switching mechanism to make the inductance current track the sinusoidal reference current command closely and obtain a low THD injected current. The direct current (DC) link capacitor maintains the solar PV array voltage at a certain level for the voltage source inverter. The single phase inverter with the output filter converts the DC input voltage into AC sinusoidal voltage by means of appropriate switch signals and then the filter output passes through an isolation step up transformer to set up the filter output voltage required by the electric utility grid and load [24].

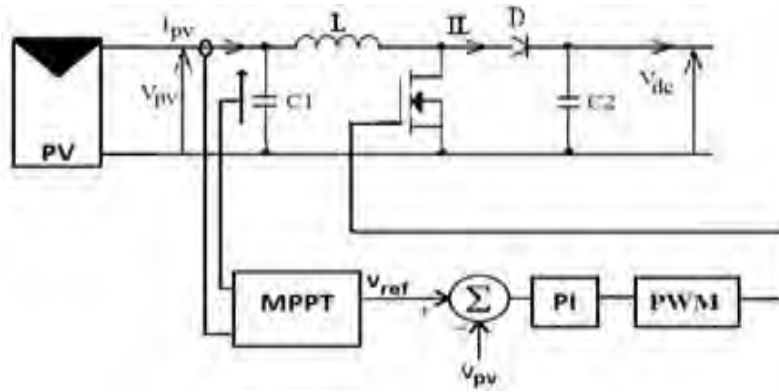


Fig. 4. Boost converter with MPPT controller

3. RESULTS AND DISCUSSION

Fig. 5 shows the system model configuration that will be used to generate electrical energy using PV array, then feed it to a building in Amman (load) as a case study. And the extra power to the grid. The system is composed of two main buses: a DC bus and an AC bus. The PV panels are connected to the DC bus. This power is then converted to AC bus to which the electrical load and the grid will be connected. The annual global solar radiation in Amman-Jordan is about 5.47 kWh/m²/day. Suppose that the electrical load of the research building is 40 kWh/day. Due to the losses of the system the Electrical load will be $E_l = 1.15 * 40 = 46$ kwh/day. The average number of the sunshine of hours in Jordan for the year is set to 9.5 hours per day If the selected PV module is KYOCERA KD235GX solar panel with 235 Wp peak power. The parameters of the PV module used in our study are tabulated in Table 1 and its approximated I-V and P-V characteristics are depicted in Figs. 2 and 3 respectively [15]. PV array size = Electric. Load / sunshine hours $46 / 9.5 = 4.85$ kW. Due to the inverter losses PV array size becomes: PV array size = $1.045 * 4.85 = 5.07$ KW. The number of PV modules = PV array sizing / peak power of module = $5.07 / 0.235 = 22$. If the selected Grid Tie Solar Inverter is GT5.0SP with the specifications in Table 2 Inverter power = $4850 * 0.95 = 4651.15$ W. So the number of PV in series = $600/36.9 = 16$ modules Number of PV modules in parallel = $22/16 = 2$ modules. So the final number of PV panels = $2*16 = 32$ modules. The maximum current = (number of PV in parallel) * $I_{sc} = (2) * 8.55 = (17.1)$ A. So number of PV in parallel = $22/8.55 = 2$ modules Number of PV modules in parallel = $22/2 = 11$ modules. So the final number of PV panels = $2*11 = 22$ modules, and the maximum voltage = number of PV in series * $I_{sc} = 11*36.9 = 405$ V.

The I-V and P-V characteristics for the array and for each module are shown in Figs. 6 and 7, respectively. The duty cycle of the boost is set to 0.5.

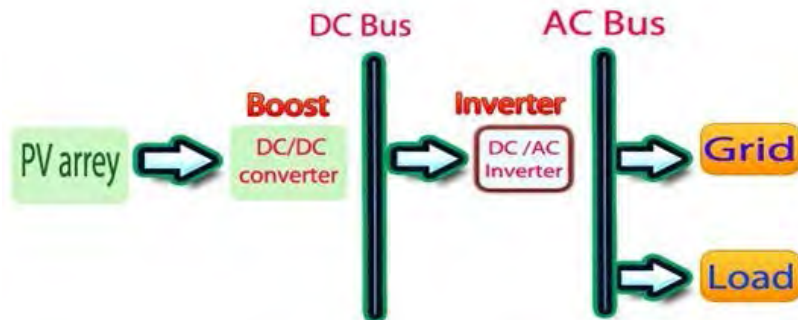


Fig. 5. System model configuration

Table 1. The PV module data

Power peak	235 watt
Maximum power voltage V_{mpp}	29.8 V
Maximum power current I_{mpp}	7.89 A
Open Circuit voltage V_{oe}	36.9 V Short
Circuit current I_{se}	8.55 A
Max system voltage	600 V
Temperature voltage coefficient	$-1.33 \cdot 10^{-1}$ V/C0
Temperature current coefficient	$5.13 \cdot 10^{-3}$ V/C0

Table 2. The specification of selected inverter

AC power	5000
AC voltage	240 V
AC current	21 A
Frequency	50 Hz
Maximum DC voltage V_{max}	600 V
Maximum DC current I_{max}	22 A
Maximum efficiency	95%

3.1 The Effect of Irradiation

3.1.1 Irradiation varying in a ramp up/down form

At $t=0$ sec the radiation is set to 1000 w/m^2 then at $t=0.7$ sec it decreases with a rate of $1500 \text{ w/m}^2/\text{sec}$ for 0.5 sec then at $t=1.5$ sec it increases with a rate of $1500 \text{ w/m}^2/\text{sec}$ for 0.5 sec. As it is shown in Figs. 8 and 9 shows the variation of the PV DC voltage, PV DC current, and the diode current as a result of the radiation variation. Fig. 10 shows the PV output power and the effect of the variation of the radiation. And how the duty cycle decreases to track the PV output power close to the maximum power point of the PV for the given conditions.

3.1.2 Irradiation varing in a step form

At $t=0.7$ sec a step from 1000 w/m^2 to a 200 w/m^2 has been done as shown in Figs. 11-13 show the variation of the output array voltage and power. It is shown that the output PV current decreases and increases as the radiation decreases or increases. Once the radiation changes sharply consequently the output PV power changed sharply Fig. 13 shows that the duty cycle value follows the changes of the radiation (the response of the MPPT) in order to track the maximum power point that can be attained from the PV array under these conditions.

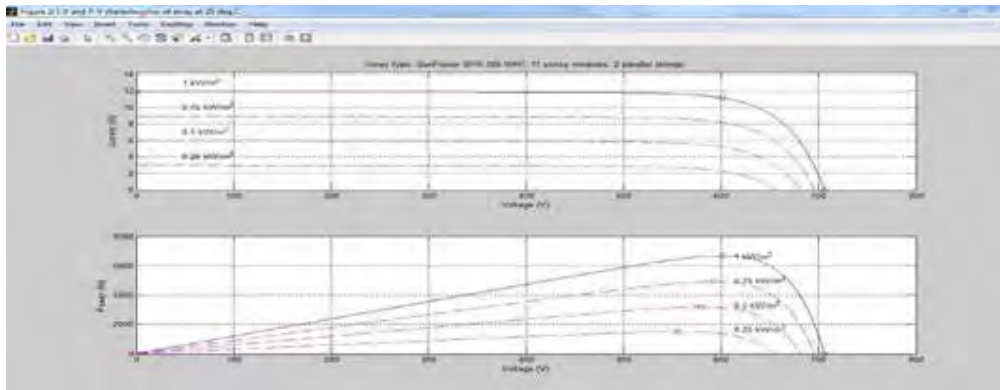


Fig. 6. Array 1-V and P-V characteristics

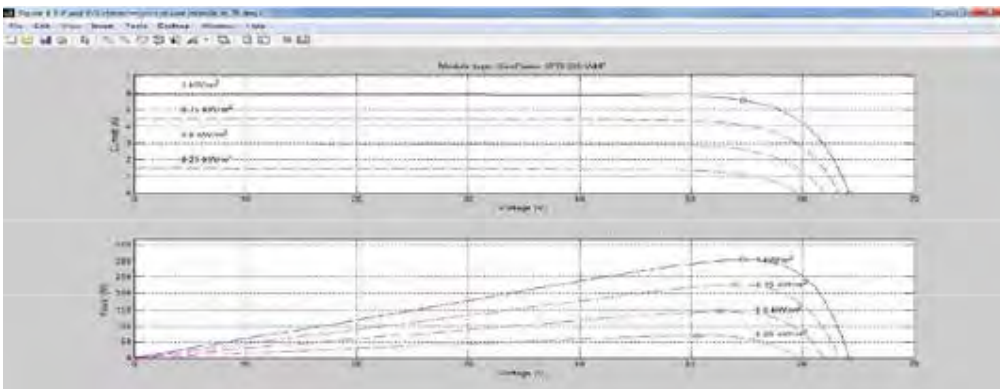


Fig. 7. One module 1-V and P-V characteristics

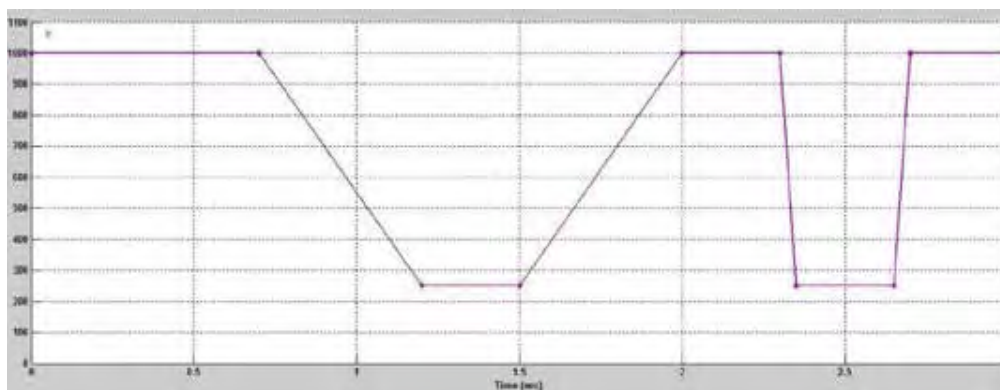


Fig. 8. The radiation as a function of time

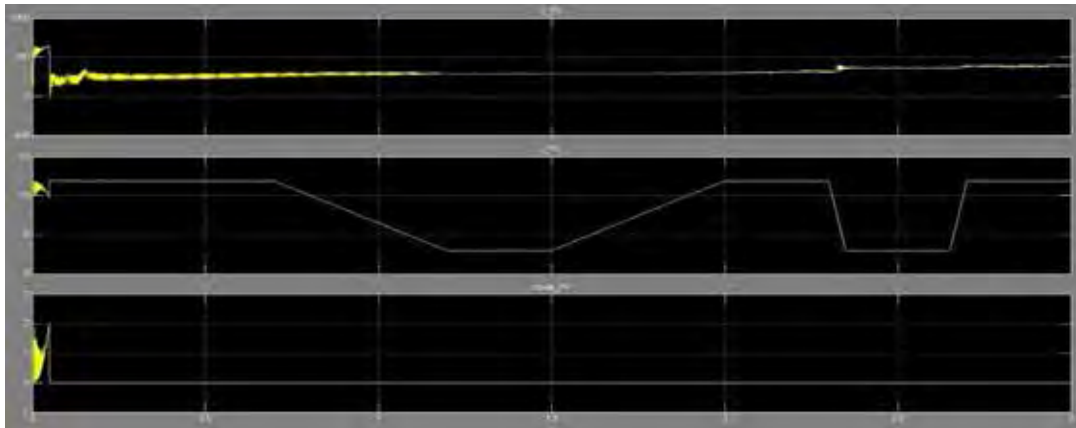


Fig. 9. The output PV-voltage, PV-current, and the PV diode's current

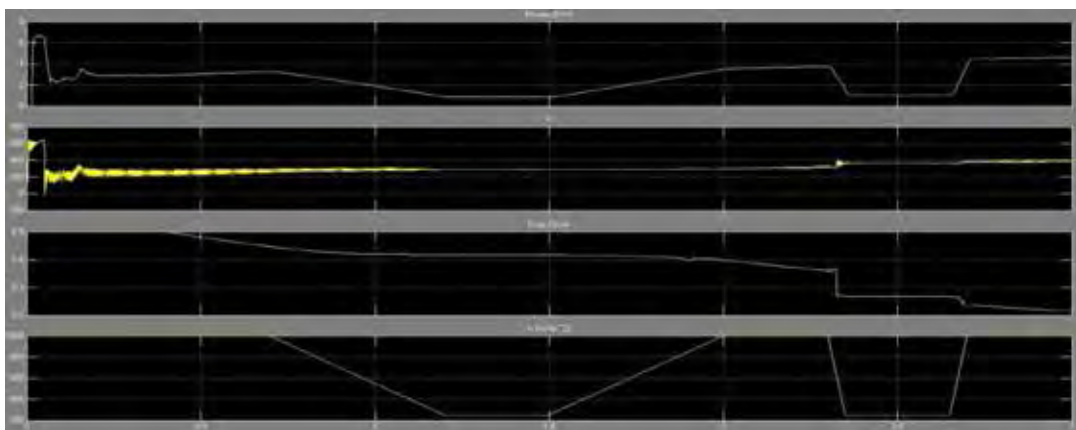


Fig. 10. The Boost converter output mean power, boost converter output voltage, the duty cycle, and the PV array irradiation

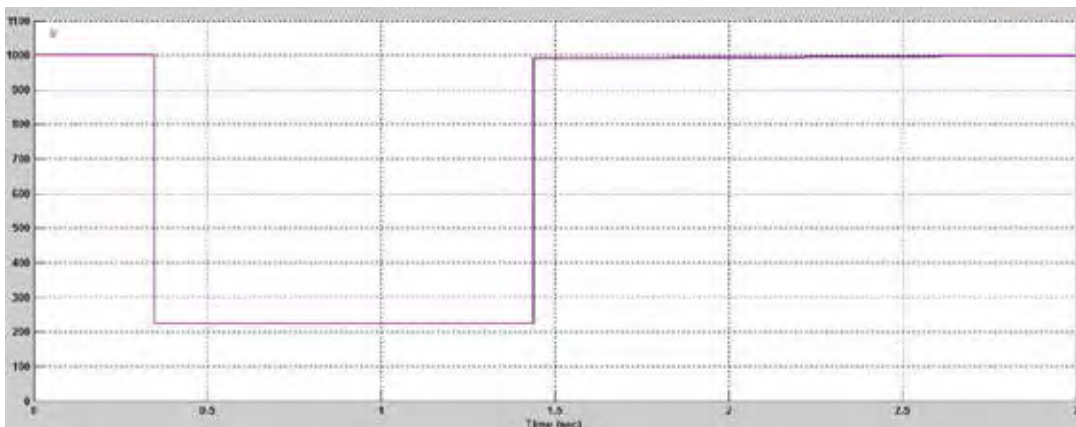


Fig. 11. Step irradiation

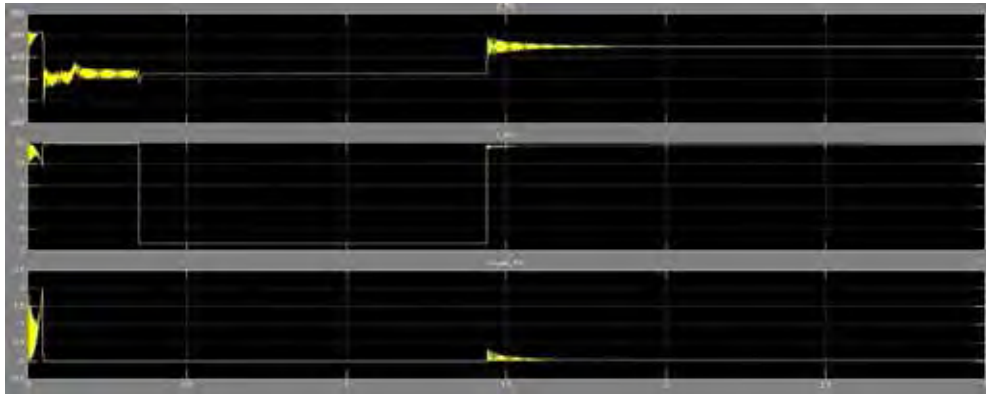


Fig. 12. The boost converter output voltage, output current, and the diode's current

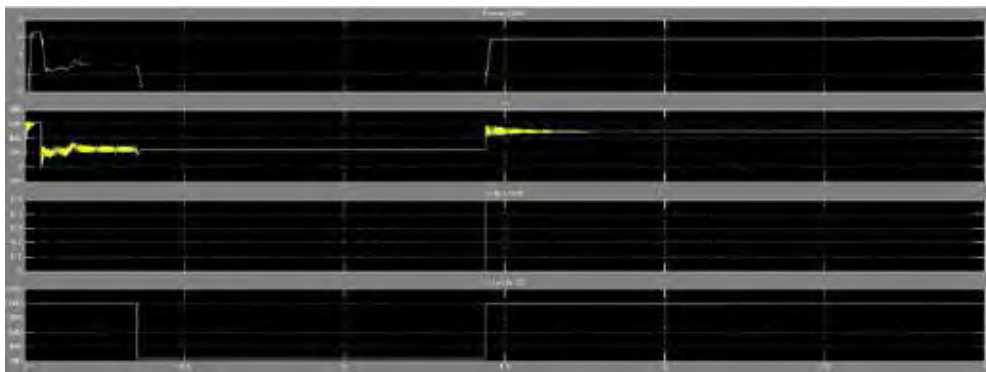


Fig. 13. The boost converter output mean power, output voltage, the duty cycle, and the PV array irradiation

3.1.3 Changing the duty cycle (D) of the boost

The duty cycle set to 0.75 instead of 0.5, and the same parameters of the first case. Fig. 14 shows how the output PV power under such conditions decreases than that of case one.

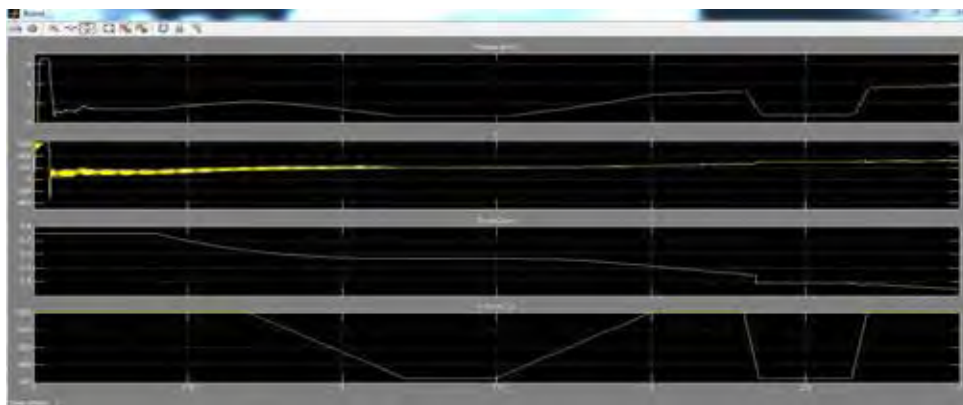


Fig. 14. PV power, boost converter output voltage, duty cycle, and the irradiation

3.1.4 Sand effect on PV array

Sand effect, or any analogue effect like shading, dust, snow, clouds..., e.t.c, can be simulated by adding another signal to the signal of irradiation. As shown in Figs. 15

and 16 shows how the PV current changed following the irradiation variation caused by the sand effect. Leading to a decrease of the output PV power which means minimization of the efficiency and so the performance of the PV.

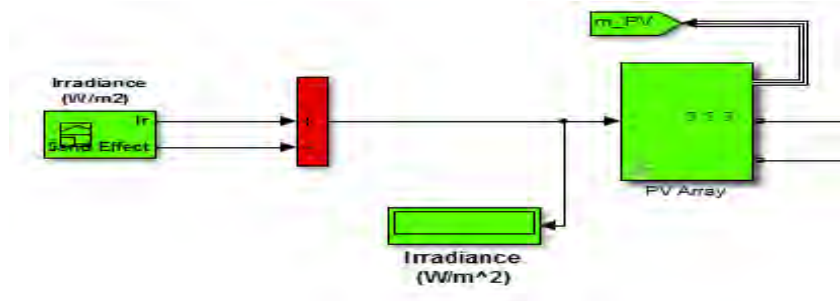


Fig. 15. Sand effect models

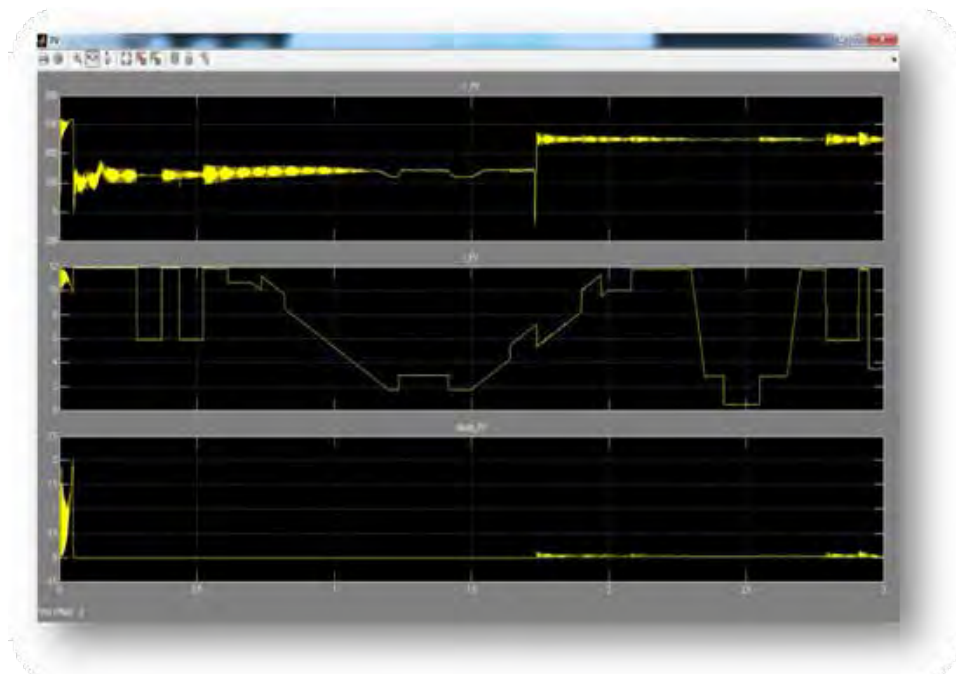


Fig. 16. The PV voltage, PV current, and the diodes current under the sand effect

4. CONCLUSION

The paper presents an approach of modelling a solar PV cell. The model is based on the fundamental circuit equations of a solar PV cell taking the effects of the environmental parameters such as the solar radiation, the cell temperature and the sand effect. The module was simulated on a Matlab/Simulink model using a KYOCERA KD235GX solar panel with 235 Wp peak power, such model would provide a tool to predict the I-V, and P-V characteristics of the solar PV cells and to select the

proper power electronics and the associated control method to track the maximum power point under the changes of the environmental parameters.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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M. Balah, G. Elsaed and M. Hasan,
*Department of Civil Engineering, Faculty of Engineering,
Suez Canal University, Ismailia, Egypt,
Department of Civil Engineering, Faculty of Engineering,
Shobra, Banha University, Cairo, Egypt*

Evaluation Studies for Shore Protection Design

1. INTRODUCTION

The coastal landscape west of Alexandria is one of the most attractive recreational sites in Egypt. The coastline is characterized by wide beaches consisting of white Oolitic carbonate sand. The shore is generally linear with few protective configurations. However, the beach is not suitable for swimming because of the steep beach profile ranging from 1:30 to 1:50 [1]. Strong offshore direct rip currents regularly lead to hazardous situations, and at some locations swimming is prohibited for a considerable time of the year especially during summer storm. The swimming may be prohibited at locations where the wave height is too large or the rip shore currents are too strong. So, these conditions may have adverse effects on recreational facilities along the coast. [2] concluded that breaker heights smaller than 0.6 m and current velocities smaller than 0.2 m/s are considered as comfortable swimming conditions, but it is hard to swim against a rip current of 0.5 m/s and breaker height greater than 2.0 m even for good swimmers.

The current study concentrates on the use of perched beach. This scheme was tested by Delft Hydraulics, Netherlands as an ideal scheme in the Al-Arab Bay zone in 2003 to create safe swimming conditions. This scheme consists of a submerged breakwater enclosing a sheltered basin. The top level of the offshore part of the submerged breakwater is close to the sea water surface level to ensure water flow from open sea to the basin and to prevent obstruction of the sea view, i.e. minimal visual impact. Basins enclosed by submerged breakwaters exist naturally, e.g. a rocky submerged shoal enclosing a shelter basin, such as at Stanley beach in Alexandria (named "Al Bahr al Sagir") and artificially or semi-artificially, such as at Sela beach in Bat-Yam, as illustrated in (Fig. 1).



Fig. 1. Sela beach development scheme at Bat-Yam, constructed since 1969

The enclosed basin at Sela beach is 400 meters alongshore by 175 meters perpendicular to the shoreline. The breakwater followed the lines of existing submerged beach rock to minimize construction costs; the submerged breakwater was partially constructed on a sandy sea bed. Outside the enclosed basin, accretion fillets take place on both sides. The accretion fillets undergo seasonal changes due to the offshore/onshore sand movement. The littoral drift bypass around the breakwater results in a negligible impact on the neighboring shoreline evolution due to breakwater construction. Periodic water quality tests had been performed since the construction of the Sela beach scheme in 1969, showing that water quality inside the enclosed basin is similar to the open sea due to the outflow of water mainly through the rubble mound breakwater as the still water level is higher inside than outside the basin. This was due to the inflow of water by currents generated by waves breaking on top of the submerged breakwater. Wave height inside the enclosed basin were significantly reduced compared to the open sea. Wave heights are about 0.5 meters inside against 1.5 meters outside the basin. During winter storms, wave heights in the basin may reach up to 1.0 to 1.5 meters and currents of significant velocities were reported by good swimmers [3].

During most days of the summer months, the eastern coast of the Mediterranean Sea is exposed to onshore wind resulting in waves having heights from 0.6 to 1.2 meters and sometimes up to 2 meters, as indicated by [3], based on long term observations. Prior to the construction of the Sela beach breakwater, the nearshore bar was sounded and found to have a crest elevation of about 1.0 m

below the sea water surface level quasi-parallel to the shoreline, as illustrated in (Fig. 2). Wave breaking occurs on the sea side or on the top (crest) of the sand bar and almost the entire width of the foreshore is covered by surf. The area between the coastline and the inner (onshore) side of the bar acts as a velocity field in which flow takes place in all directions (Fig. 2). Along the near shore bar there are breaks (channels) or rip passes through which rip currents are forced out to the sea. On top of the bar the water seemed to be air entrained, absorbing currents from both sides. The bar configuration, rip passes, currents velocities and directions are changing under different waves conditions. This flow field, the rhythmic bathymetry and the difficulty of returning to the shore due to rip currents are the reasons of drowning accidents, conditions very similar to the north western Egyptian Mediterranean coast.

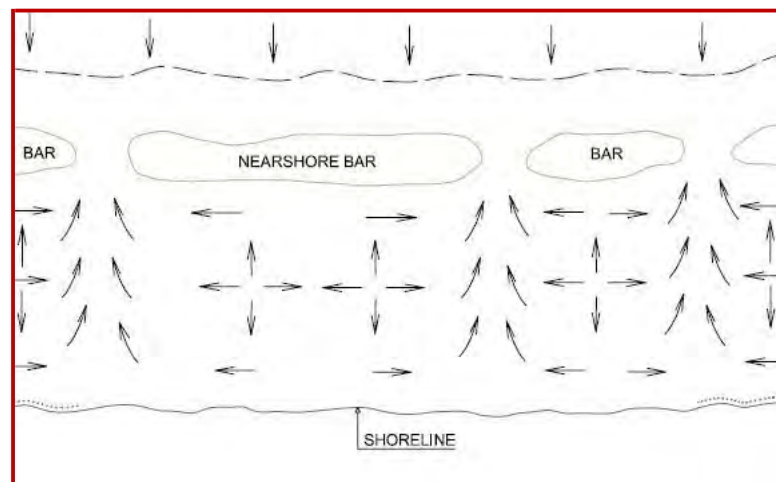


Fig. 2. Schematic diagram of nearshore bar and nearshore current

Due to the increasing demand for safe swimming conditions with minimum impact on the shoreline and keeping acceptable water quality, new studies have been conducted to meet these requirements using appropriate coastal structures. [4] conducted a study in 2002 for the development of the North-West coast of Egypt and recommended the use of a perched beach as a possible alternative for safe swimming conditions along the Al-Arab bay zone, located from Al-Agamy at Km 21 to Al-Alamin city at Km 120 (along the Alexandria-Matrouh road). However, none of the perched beach designs have been constructed to date. Thus, the actual performance of perched beach is not well-known yet. Recently in 2011, one design was approved by the Egyptian Environmental Affairs Agency (EEAA) at Km

38 along the Alexandria-Matrouh road. The construction of this perched beach started in 2012 and was completed by 2013. Thus, the actual field effect of the perched beach can be monitored and compared with the results predicted by numerical models.

2. STUDY AREA

The pilot area is the coast of a new tourist resort located at Sidi Krir, kilometers 39.774/40.078 west of Alexandria along the Egyptian Northwestern Mediterranean coast, as illustrated in (Fig. 3). In this study, a location has been selected where the shoreline makes an angle of 40° with the North direction. Thus, the predominant waves are almost perpendicular to the shoreline and consequently the slope of the beach is steep, making it a dangerous location for swimmers. Due to the steep slope in the upper part of the beach profile in the study area (water depth <8.0 m below Mean Sea Level (MSL)), waves break close to the shoreline where people tend to swim. The breaking waves make it difficult for swimmers to move freely and may even cause them to remain in place due to seaward drifts caused by the undertow and the rip currents. As a result of the adverse effect of the steep beach profile, swimmers reach relatively large water depths within a short distance from the shoreline. If they reach 30-50 m from the shore line, it is too deep to stand on the sea bed. This, in combination with the breaking waves, allows for a very narrow usable strip for most swimmers along the beach.



Fig. 3. Location map of the pilot area

The layout and dimensions of the proposed perched beach is shown in (Fig. 4). The resort beach is 300 m long, but the protected length is 200 m, leaving 50 m on both sides of the groins open to the sea. However, simulations using the SMS model have been made for 3000 m along the shore line, extending for about 1500 m normal to the shoreline to limit the boundary effects on the study area. The perched beach generally has two bounding groins and shore parallel breakwater at water depth equal to 3.5 m. The groins extend for 120 m normal to the shoreline and have some opening in its body, such as either a pipe or a gap.

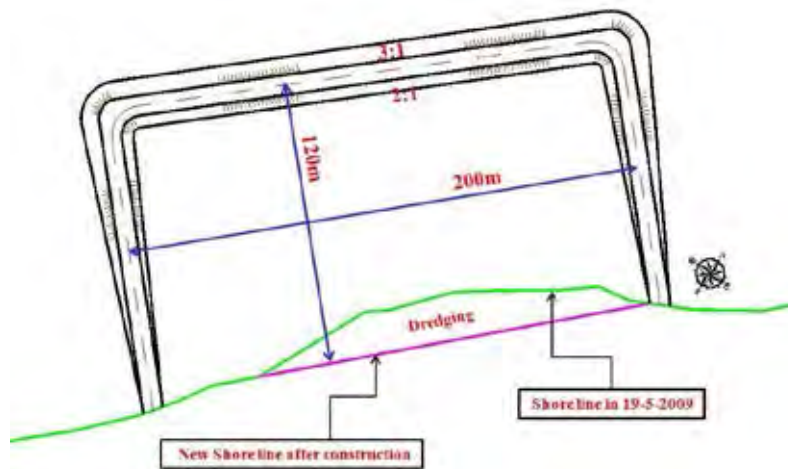


Fig. 4. The layout of the proposed perched beach

Simulations have been made for the case of the perched beach before construction in order to evaluate the problems encountered in the beach. This case was called the baseline condition and shall be used as a reference condition. Based on the results of the wave rose in the El-Dekhiela port (Fig. 5), it has been found that three wave conditions are of major importance, i.e., two during the summer season and one in winter, as shown in (Table 1). The dominant wave height all over the year in deep water is 1.77 m and it occurs for (20-30) days during the summer season. However, in the summer period the most relevant for beach recreation and swimming condition, wave heights reach a significant wave height (H_s) of 2.5 m for (4-5) days.

Table 1. The dominate wave conditions

Wave condition	Hs (m)	T (s)	Duration (days)	Notes
1	1.77	5.0	20-30	In summer
2	2.50	7.5	4-5	In summer
3	4.50	10.0	0.86	In winter

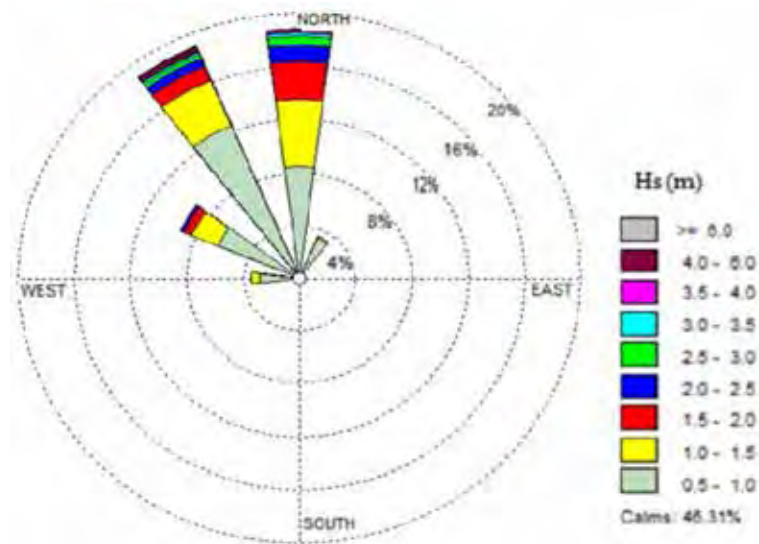


Fig. 5. The wave rose at a water depth of 13 m in El-Dekhiela Port (2001-2005)

Various configurations of the perched beach have been described and simulated and the results analyzed to provide general guidelines for the design of a perched beach within the Al-Arab Bay zone denoted as Cell 5 of the North West coast of Egypt. The proposed alternatives have various configurations, including: submergence ratio of the breakwater, groin with/without gap and emerged/ submerged groin. The alternatives have been compared from the point of view of wave height, currents velocities, and flushing and shoreline changes. It should be noted that the constructed perched beach is denoted as Alternative (04) in the current study.

2.1 The Proposed Alternatives

The proposed alternatives have various configurations, as follows:

Alternative (01): Submerged groins and breakwaters:

This alternative proposes a shore parallel breakwater and two groins having their crest at - 0.50 m MSL. (Fig. 6) shows the layout of the structures and the bed

levels as presented by the SMS model. This alternative has all the merits of submerged structures, e.g., an aesthetic view, moderate waves, good flushing, etc.

Alternative (02): Submerged breakwater and surface piercing groins:

This alternative is similar to Alternative (01) except that the groins are constructed higher than the water surface at +2.0 m MSL (Fig. 7). This alternative enables the possible economic use of the groins for recreational activities, but it affects the sight distance of beach visitors to some extent due to interruption of the sight line at the boundaries.

Alternative (03): Submerged breakwater and surface piercing groins with a gap:

This alternative is similar to Alternative (02), but the west groin has a gap located at 1/4 of the groin length measured from the offshore head and the east groin has another gap at 1/4 of the groin length measured from the shoreline (Fig. 8). The proposed gaps are sought to help flush the protected area and allow less trapping of long shore sediments.

Alternative (04): Submerged breakwater and groins with a gap:

This alternative is similar to Alternative (03), but the crest level of the two groins is at -0.50 m MSL. (Fig. 9) shows the layout of this alternative and the topography of the sea bed generated by the SMS model.

Alternative (05): Very low crested breakwater and groins:

This alternative is similar to Alternative (01), but the crest level of the two groins and the submerged breakwater is at -1.25 m MSL (Fig. 10).

Alternative (06): Medium low crested breakwater and groins:

This alternative is similar to Alternative (01), but the crest level of the two groins and the submerged breakwater is at -0.9 m MSL (Fig. 11).

The baseline and each alternative have been tested with three wave conditions: 1.77 m, 2.5 m and 4.5 m approaching from the North West direction and represent moderate to severe wave conditions. The presented results are mainly focused on the flow field inside the perched beach and the adjacent area

along the shoreline. Moreover, the shoreline changes (erosion/accretion) have been investigated.

2.2 Field Measurements

The survey is performed from onshore the high water line to 10 meters and more offshore relative to Admiralty Chart Datum (A.C.D.). The survey was performed using echo-sounder and differential GPS. Total station stands with reflectors are used for the beach face and backshore. The water depths are corrected to account for sea water level fluctuations to be relative to A.C.D.

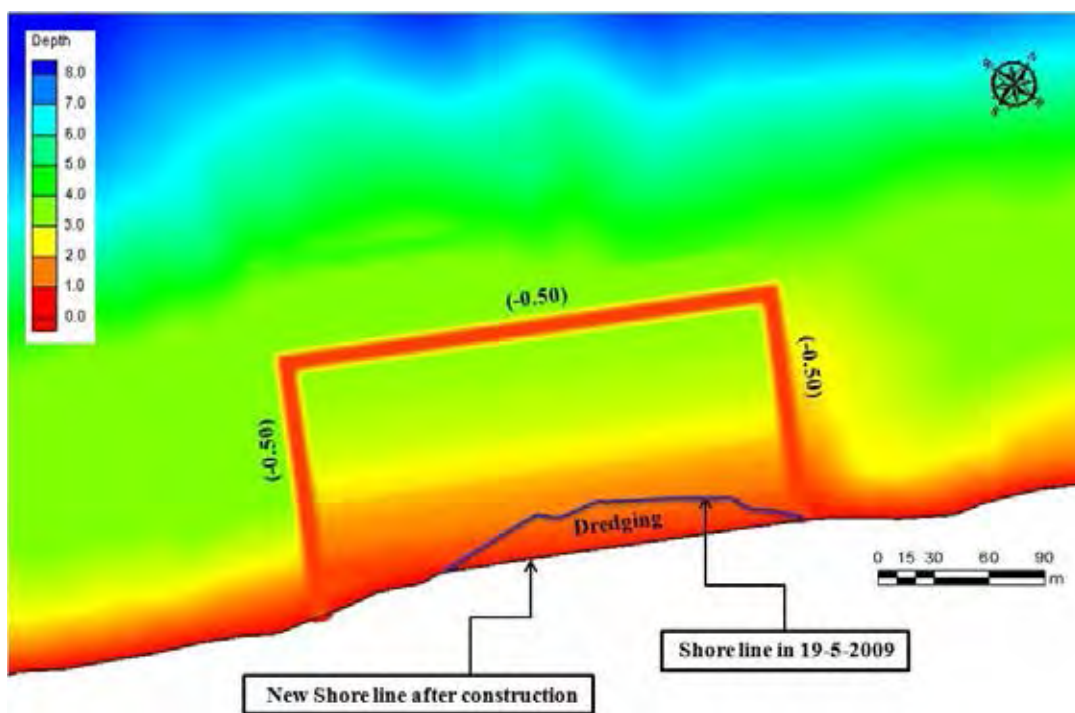


Fig. 6. Layout of perched beach and sea bed levels for alternative (01)

Sediment samples at the study area region were collected at different depths/locations along the coast. Sea bed soil samples are collected from the backshore and the beach face up to 6 meters water depth. Laboratory grain sizes distribution tests performed for the samples illustrate that the backshore and the onshore part of the beach face consist of well graded medium sand. Samples collected in water depths close to 2 meters are medium to coarse sand which could be attributed to the washing of fine sand during collection of samples by divers. From analysis of the sediment sample in the study area, it is cleared that the sand on

the beach and in the upper part of the coastal profile is coarse, in the order of $O_{50}=(0.3-0.7)$ mm, while in the deeper part (below MSL-2 m) the median grain size somewhat smaller, in order of $O_{50}=(0.2-0.3)$ mm.

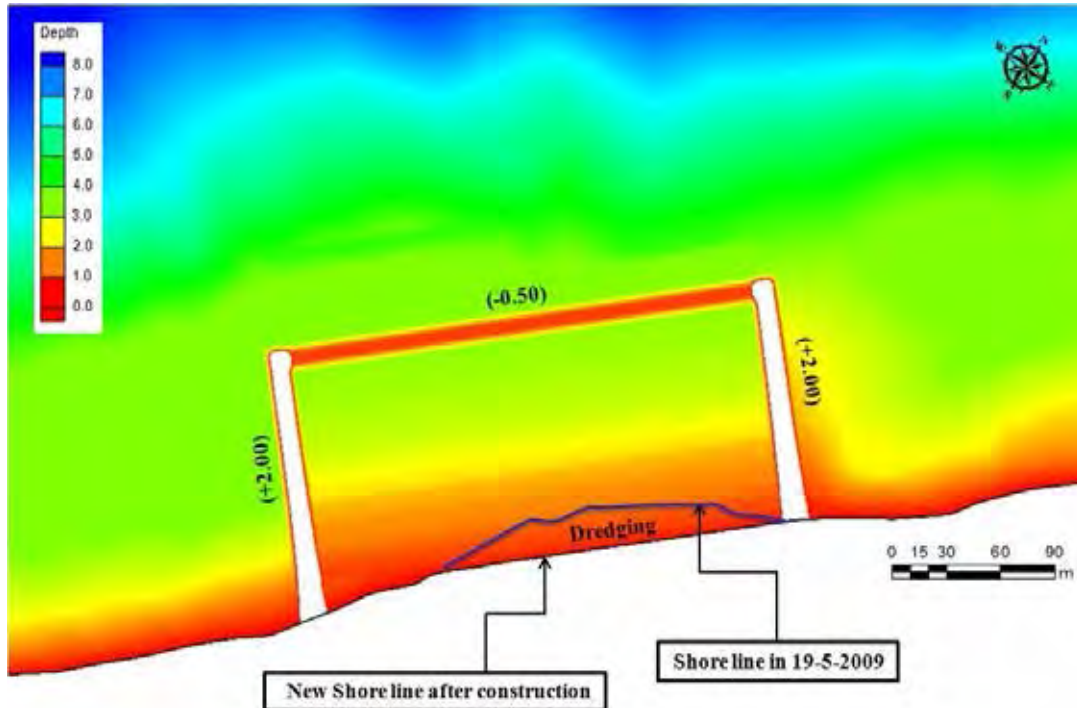


Fig. 7. Layout of structures and sea bed levels for alternative (02)

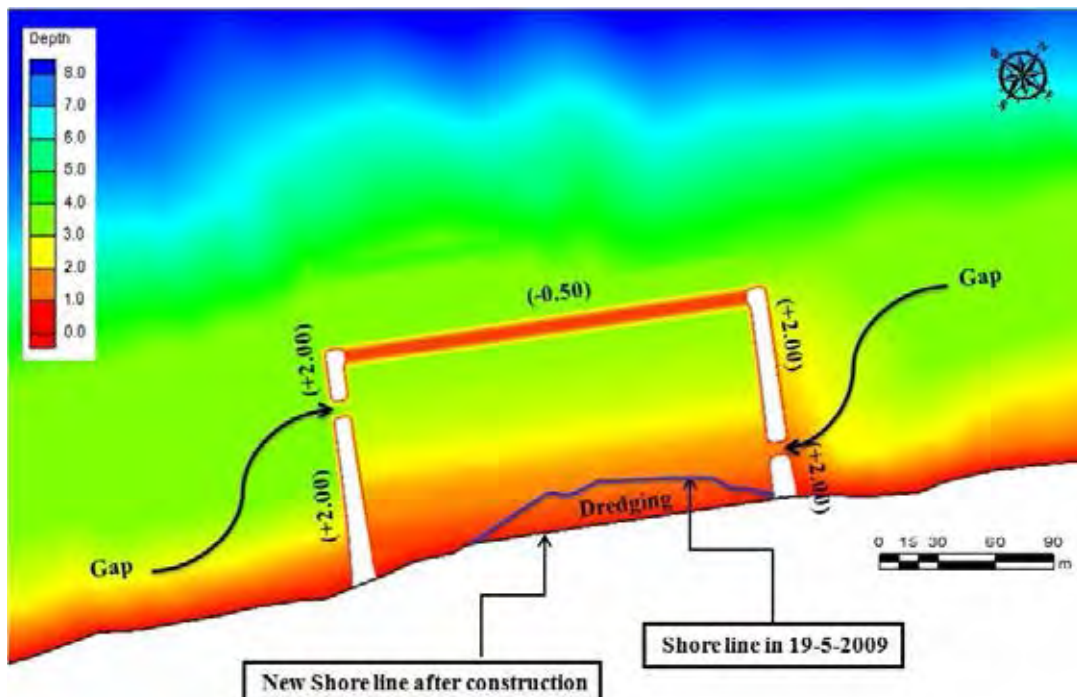


Fig. 8. Layout of structures and sea bed levels for alternative (03)

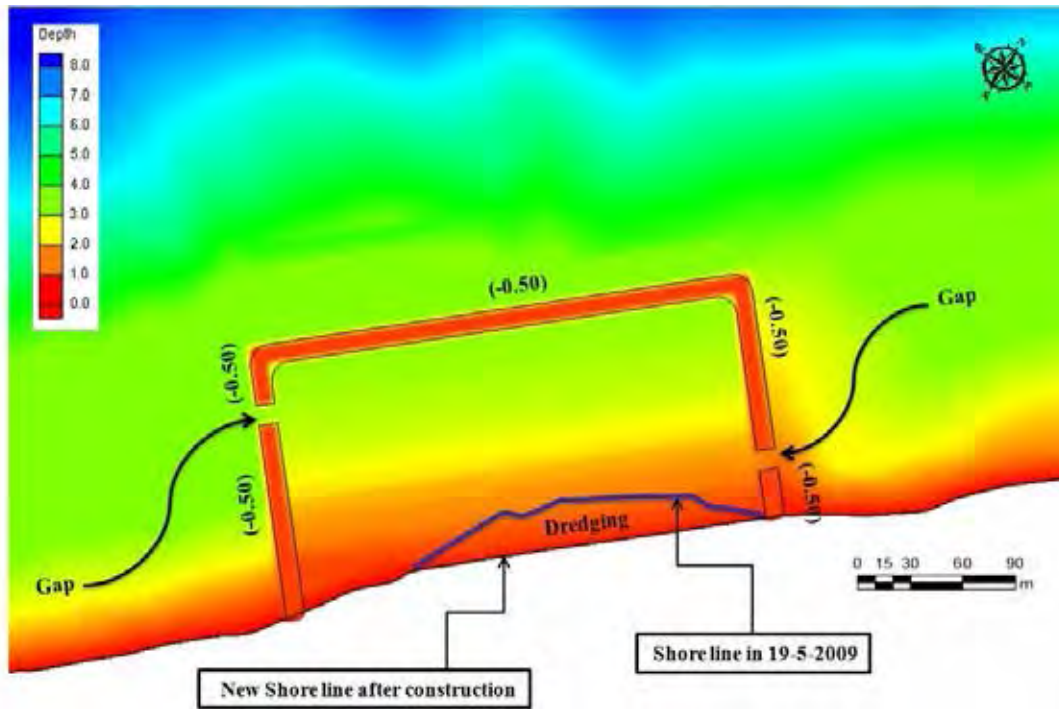


Fig. 9. Layout of structures and sea bed levels for alternative (04)

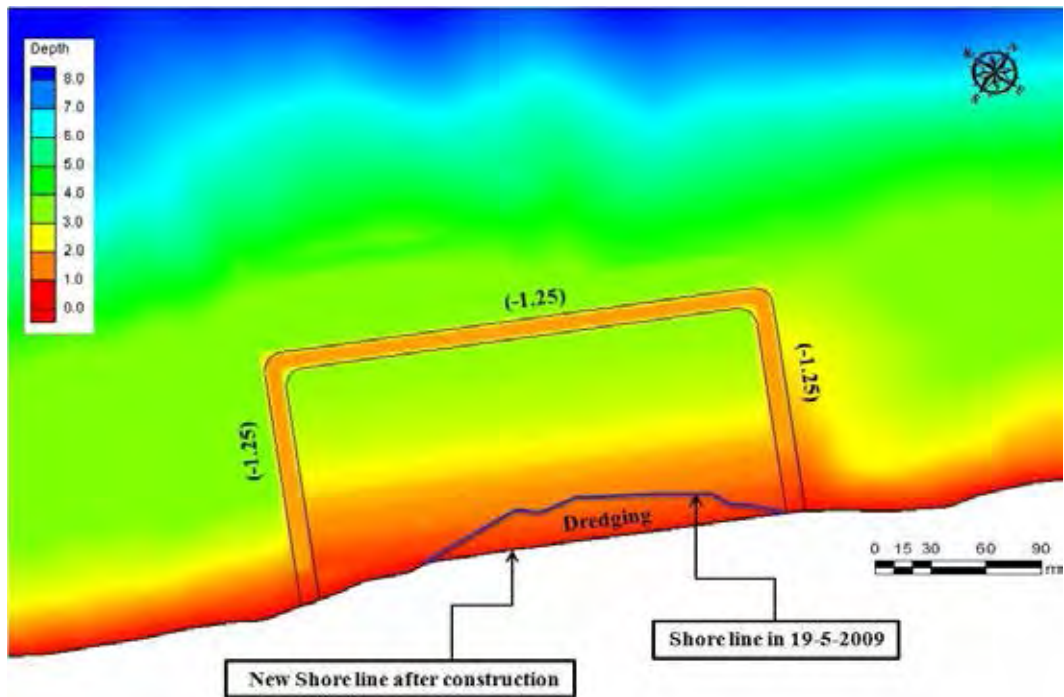


Fig. 10. Layout of structures and sea bed levels for alternative (05)

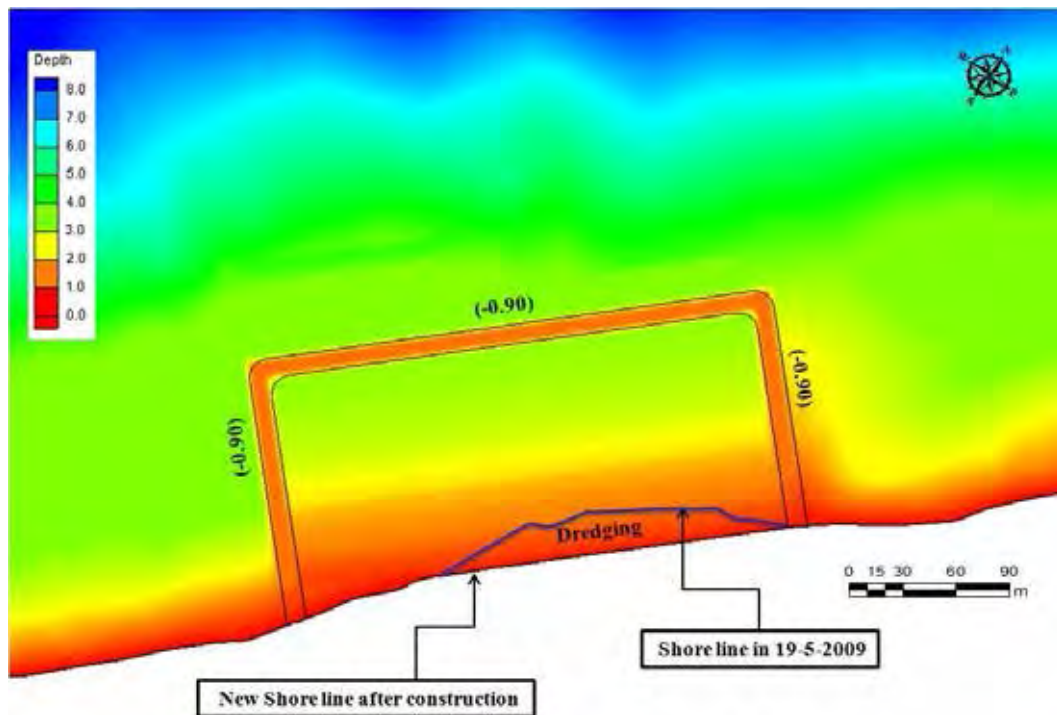


Fig. 11. Layout of structures and sea bed levels for alternative (06)

The net long shore sediment transport in pilot area is very small to negligible. On the basis of computations and observations near the south-western boundary of the pilot area, the net long shore transport is estimated to be slightly north-east directed with a magnitude of $15000 \text{ m}^3/\text{year}$ approximately. Near the north-eastern boundary of the pilot area the net long shore transport is estimated to be negligible.

Another set of data regarding the waves were collected from the available sources such as the Coastal Research Institute (CoRI) and the Hydraulics Research Institute (HRI).

2.3 SMS Model

SMS is a finite difference model originally developed by Brigham Young University 1985 in cooperation with the U.S. Army Corps of Engineers, Engineer Research and Development Center (ERDC), and the U.S. Federal Highway Administration (FHWA). Wave models in SMS include CMS-Wave, and BOUSS-20 and include both spectral and wave transformational models. The SMS model adopts GENESIS based on the one-line theory for sediment transport calculations [5]. Numerical wave models BOUSS-20 and CMS-Wave may be used together

(coupled) to evaluate potential alternatives of coastal planning for various coastal conditions.

CMS-Wave [6,7,8] is part of the Coastal Modeling System (CMS) for simulating combined waves, currents, sediment transport, and morphology change at coastal inlets, estuaries, and river mouths [9]. The CMS-Wave is a spectral wave model belonging to the phase-averaged class. It is commonly based on Energy Balance equation. It performs steady-state spectral transformation of directional random waves co-existing with ambient currents in the coastal zone. The model simulates half-plane and full-plane wave propagation, so that wave generation, wave reflection and bottom frictional dissipation of multi-directional waves can be considered. BOUSS-20 is a two dimensional (2-0) phase-resolving wave model that employs a time-domain solution of fully nonlinear Boussinesq-type equations for waves propagating in water of variable depth. The theoretical background and user manuals for BOUSS-20 are available in CMS technical reports and CHETNs [10,11].

Based on the bathymetric survey, rectilinear grids have been generated and the associated depth files have been prepared for the wave models (CMS-WAVE & BOUSS-20). The model extends 3000 m along the shoreline and 1500 m offshore. A high grid resolution has been applied in the area of the proposed structure (perched beach) in front of the tourist resort, and a low resolution has been implemented far away of the area of their influence. The grid cell size (5x5 m) is fine inside the structure area and the adjacent regions while it is coarse (20x20 m) in the far field till the open boundary (240 cells along the shoreline and 150 cells offshore). The model grid meets criteria for smoothness (adjacent cells do not differ much in size) and orthogonally (the angles of the corners of the cells are close to 90°), in order to avoid that small disturbances due to irregularities in the grid grow to governing features during the computation. The average effective grain size of the soil on-site is found to be 0.3 mm, the average berm height is computed and found to be 2 m and the closure depth is considered to be 8 m. Based on the measured shorelines of 2007, 2009 and 2012 the model was calibrated. A comparison was prepared between the computed and measured shoreline changes for different cases of different calibration coefficients (K1, K2) in the longshore sediment transport formula. It has been found that the best values of the calibration coefficients for the study site are $K1=0.45$ and $K2=0.10$.

2.4 Base Line Condition

(Fig. 12) shows the wave direction and height as waves approach the shoreline for moderate and severe wave conditions. It can be observed that waves approach the shore normal to it due to refraction. The variation of wave heights along the centerline of the project area for the case before constructing the perched beach (Shoreline is located at distance=0) is presented in (Fig. 13). It can be observed that the waves break at distances of 160 m, 120 m and 40 m measured from the shoreline for deep water wave heights of 4.5 m, 2.5 m and 1.77 m, respectively. Also, it can be observed that only a narrow strip of less than 30 m, having a wave height of less than 0.60 m for $H=1.77$ m, exists. Thus, the beach is unsuitable for swimming even during the occurrence of moderate wave heights. Also, it can be observed that for a wave height of 4.50 m, the wave height decreases rapidly when compared with incident waves of 1.77 m and 2.50 m.

The location of the breaker line for the dominant high waves during the summer season, i.e., $H=1.77$ m, is very close to the shoreline hence limiting the surf zone against the convenience of swimmers. It can be observed that there are two breaker lines, i.e., in deep and shallow water. Moreover, a strong rip current can be noticed on a rip head, which is formed offshore. Although the breaker line is shifted offshore and the surf zone becomes wider than the case of $H=1.77$ m, considerably large waves exist near the shoreline and a secondary breaker line is formed. It can be concluded that swimmers should abandon the sea for a long period during the summer season due to the occurrence of $H=1.77$ and 2.5 m waves.

(Fig. 14) shows the flow field in the pilot area. Five transects along the shoreline of the resort are shown, namely as C.S.1-C.S.5, and C.S.3 is at the resort centerline. Furthermore, the cross shore and the long shore currents are also computed as shown in (Figs. 15-a and 15-b). It is clear that the transect C.S.3 shows the largest long shore velocity and has a maximum of 0.68 m/s for $H=2.5$ m. The rip current reaches a maximum value of about 0.75 m/s occurs at C.S.4 for $H=2.5$ m during the summer season. It can be confirmed that the rip currents are generally large and dangerous for more than a month every year during the summer season (see Table 1). It can be concluded that the presence of the hazardous rip currents, circulation zones and the adverse effect of the steep profile along the coast of the pilot area, in combination with the breaking waves, makes that only a very narrow strip (20 m approx.) of coastline usable by most swimmers. So,

there is an essential need to construct a suitable coastal structure in the pilot area in order to create safe conditions for swimmers with minimum shoreline change.

3. IMPACTS OF THE PERCHED BEACH

Numerical simulations have been made for the case of the actual dimensions of the structures and site specific conditions [Alternative (04), (Fig. 9)]. It can be observed that two openings exist in the west and east groins, and dredging works have been applied to provide better shape of the beach and nearly uniform bed slope within the perched beach.

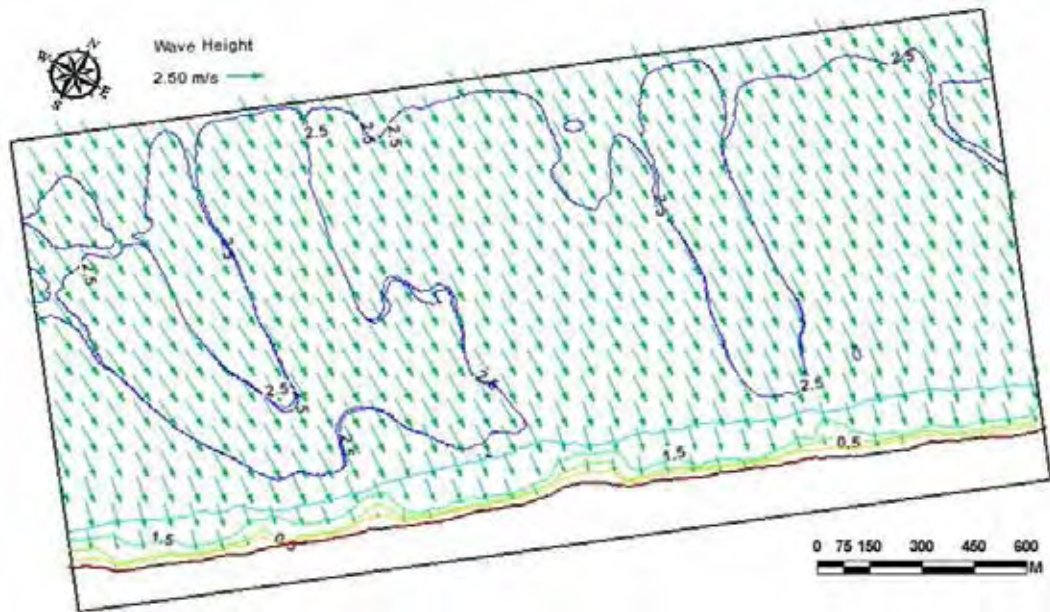


Fig. 12. Computed wave height and direction in the study area ($H=2.5\text{ m}$, $T=7.5\text{ sec}$ and direction is NW) for the baseline case

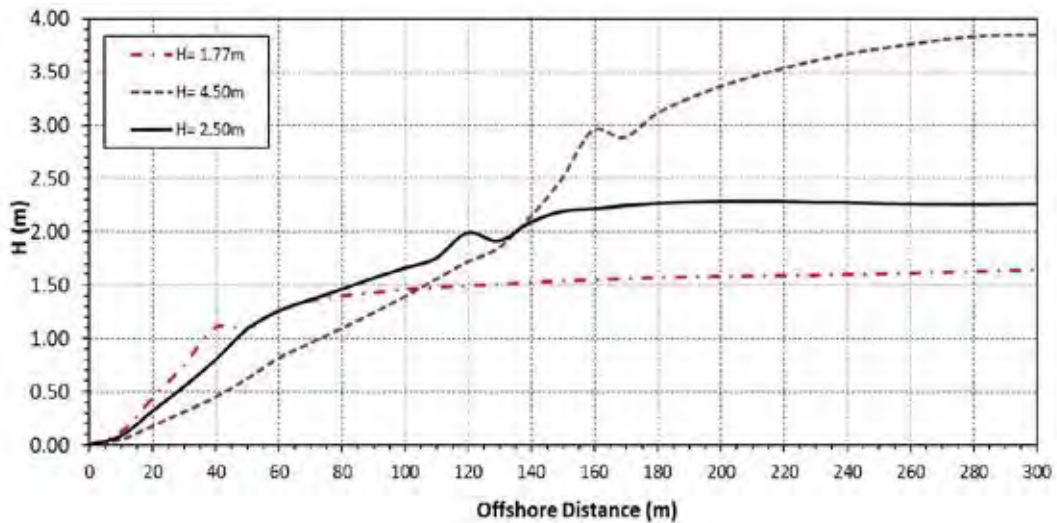
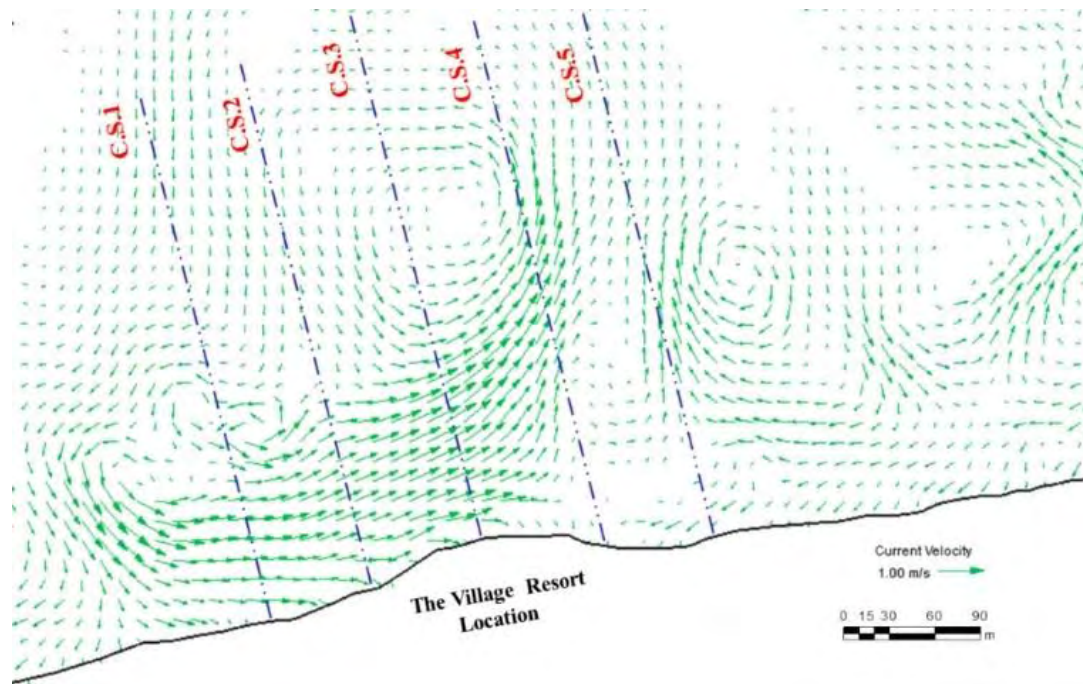


Fig. 13. Computed wave height along the centerline of the beach



**Fig. 14. Current velocity in the beach for $H=2.5$ m,
 $T=7.5$ s and direction is NW**

(Figs. 16a and 16b) show the wave direction and height as the waves approach the perched beach from the prevailing wind direction for $H=1.77$ m and 2.5 m.

It can be observed that the incident wave is partially reflected at the submerged breakwater and small waves are transmitted to the protected area over and through the permeable submerged structures. Over the submerged breakwater, the combined effects of wave shoaling and damping occur due to the change in the water depth and the dynamic interaction with the flow inside the submerged breakwater. The gap allows some wave energy into the perched beach and high waves are formed at its offshore face. Thus, it is recommended to prohibit swimmers from accessing the opening, and a strong plastic wire mesh should be installed in the openings to save swimmers from any possible movement through them.

It is also evident that wave breaking takes place over the submerged breakwater, and small waves are transmitted to the protected area (Fig. 17). It can be remarked that the transmitted wave height is always less than 0.75 m even for the extreme wave height of 4.5 m, but it is less than 0.5 m for all other incident wave height conditions. Comparisons between the wave heights for the cases before and

after construction of the perched beach are evident in (Fig. 17). It is worthwhile that before the construction of the perched beach, large waves could approach the shoreline at a height of more than 1.0 m for the prevailing deep water summer waves of 1.77 m in height. The latter waves break at about 40 m from the existing shoreline and the broken wave height is less than 0.5 m within the last 20 m from the shoreline. This causes inconvenience to swimmers due to the limited width of the surf zone and possibly large induced rip currents.

The virtue of the perched beach is well pronounced as shown in (Fig. 18) as the current velocities in the protected area become very small due to the construction of the perched beach. The velocity inside the perched beach is less than 0.5 m/sec which is very convenient for swimmers even during the extreme incident wave conditions. It can be observed that no rip current or circulation occur inside the perched beach, which is safe for swimmers. On the other hand, rip currents and circulation zones are evident outside the perched beach.

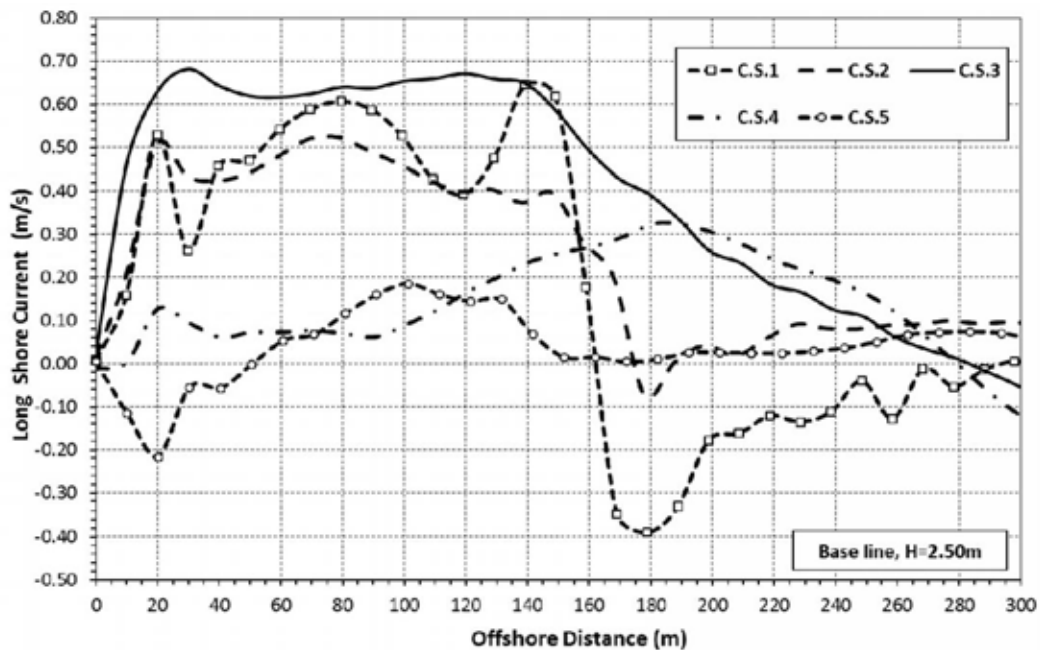


Fig. 15a. Long shore current at the profiles for H=2.50 m

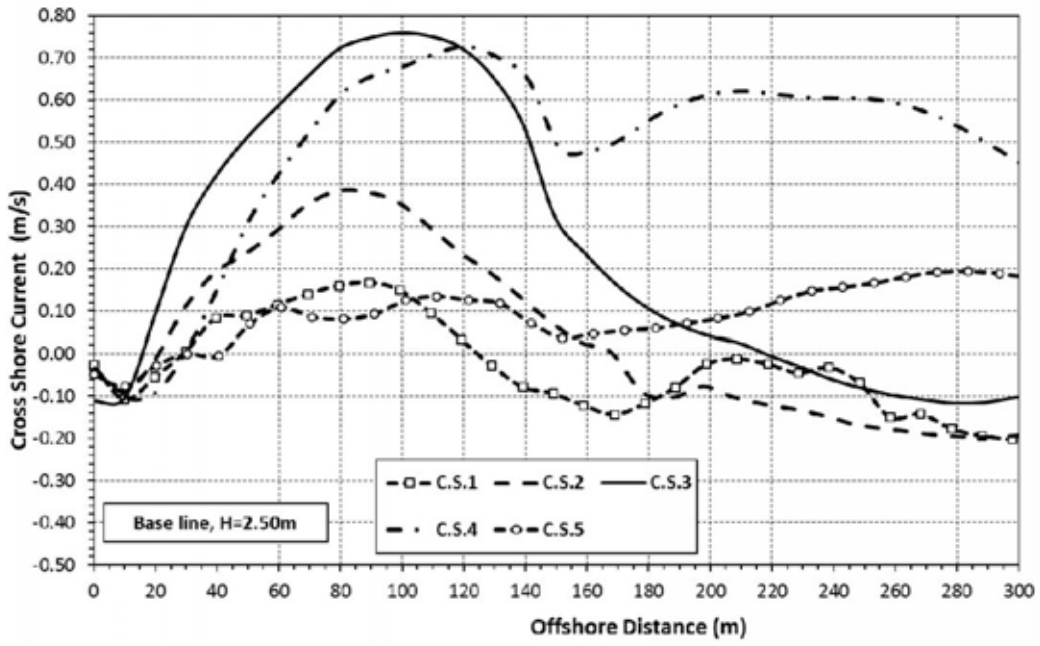


Fig. 15b. Cross shore current at the profiles for H=2.50 m

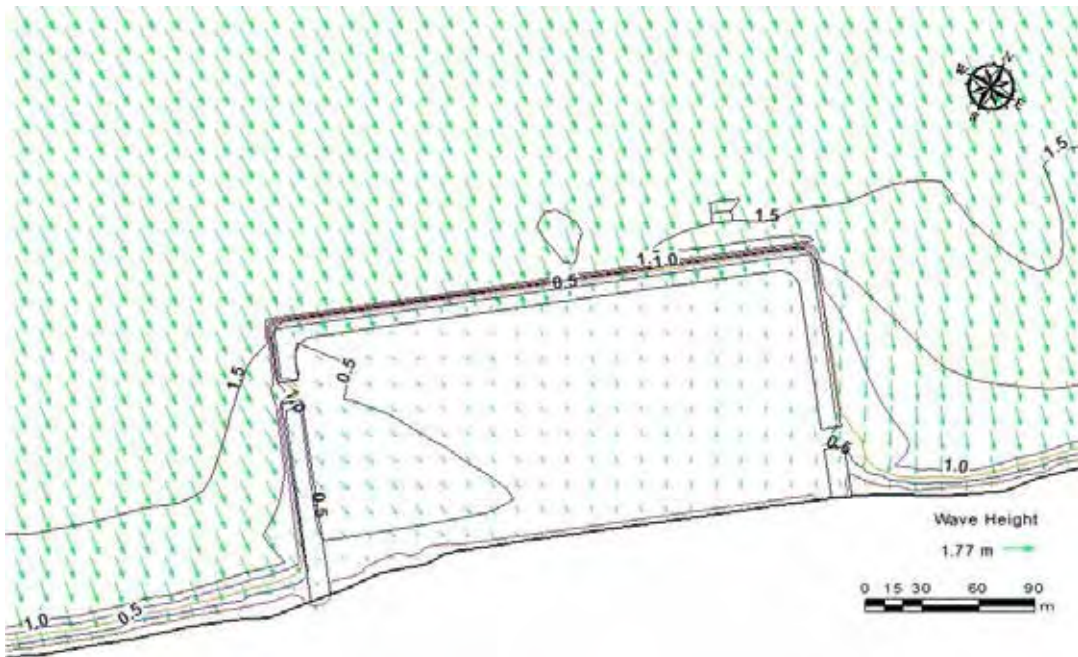


Fig. 16a. Computed wave height and direction in the vicinity of the structure for H=1.77 m

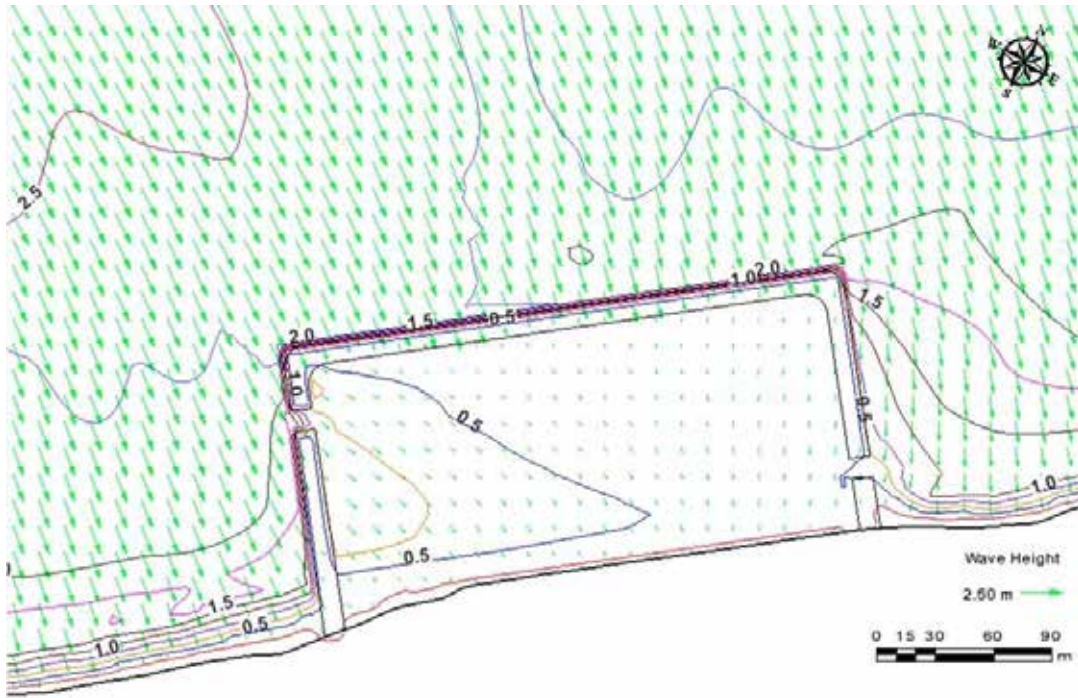


Fig. 16b. Computed wave height and direction in the vicinity of the structure for $H=2.50$ m

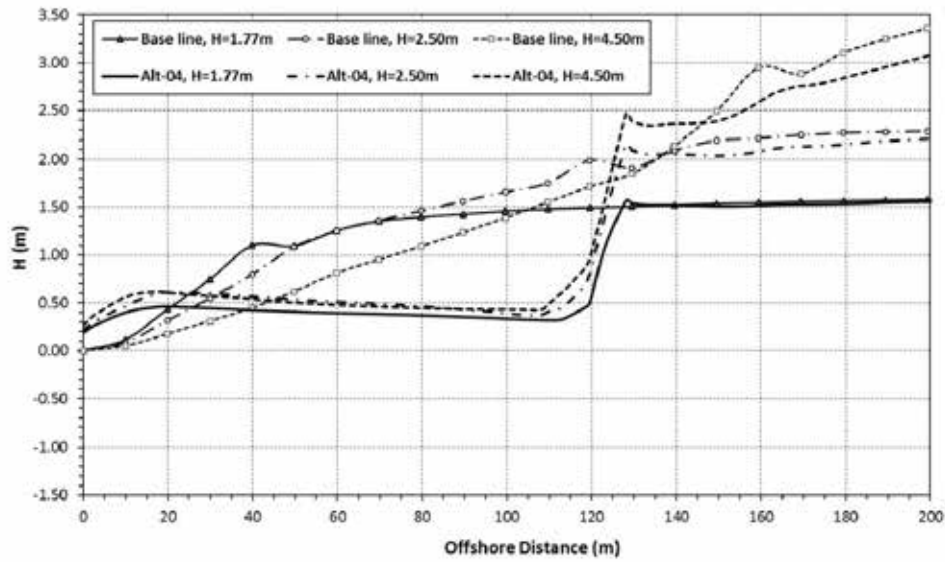


Fig. 17. Computed wave height at the centerline of the perched beach (at the profile C.S.3)

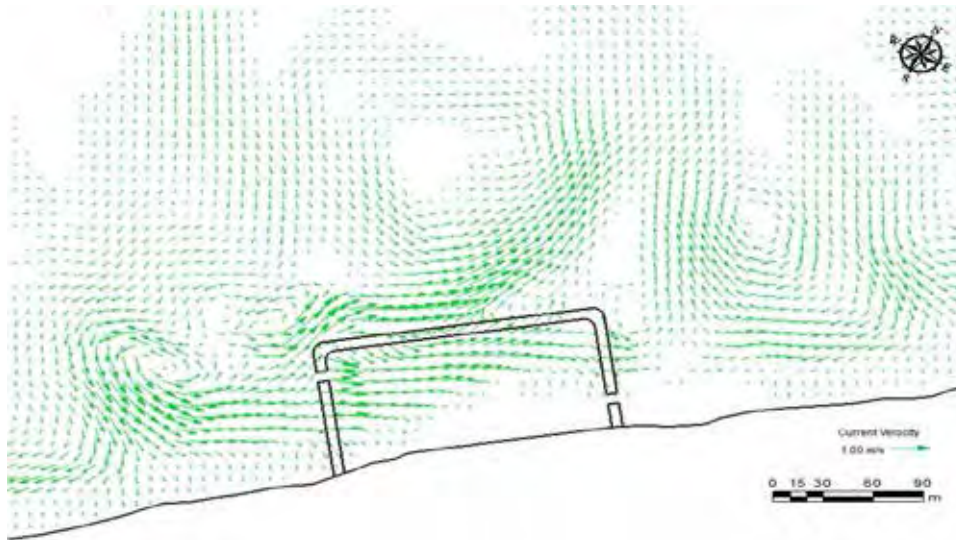


Fig. 18. The current velocity in the vicinity of the structure for $H=2.50$ m

The cross and long shore currents along the centerline of the perched beach for various incident wave conditions are presented in (Figs. 19 and 20). It can be noticed that the rip currents are almost null during moderate summer waves, i.e., $H=1.77$ m, and are less 0.2 m/s during high summer waves, i.e., $H=2.50$ m. On the other hand, the long shore current inside the perched beach is less than 0.5 m/sec during the summer waves. The maximum long shore current velocity reaches 0.70 m/s and 0.60 m/s during summer for $H=2.50$ m and $H=4.50$ m, respectively, and occur at the offshore toe of the submerged breakwater outside the perched beach. It is also evident that eddies are sometimes generated at the west corner of the submerged breakwater and large current velocities are induced at the offshore toe of the submerged breakwater (Fig. 19) for the highest summer and winter waves, i.e., $H=2.5$ and 4.5 m. Thus, additional toe protection has been made during construction at the latter locations to save the breakwater from toe scour and possible failure. The currents also cross the opening in the west groin to the perched beach at relatively slow velocity before they reach/pass the openings in the east groin. (Fig. 18) shows that two large eddies are generated during the highest summer wave, i.e., $H=2.5$ m, and are located at the west and east sides of the perched beach. Observations have been made after the complete construction of the perched beach and confirmed the aforementioned results of the numerical model to a great extent.

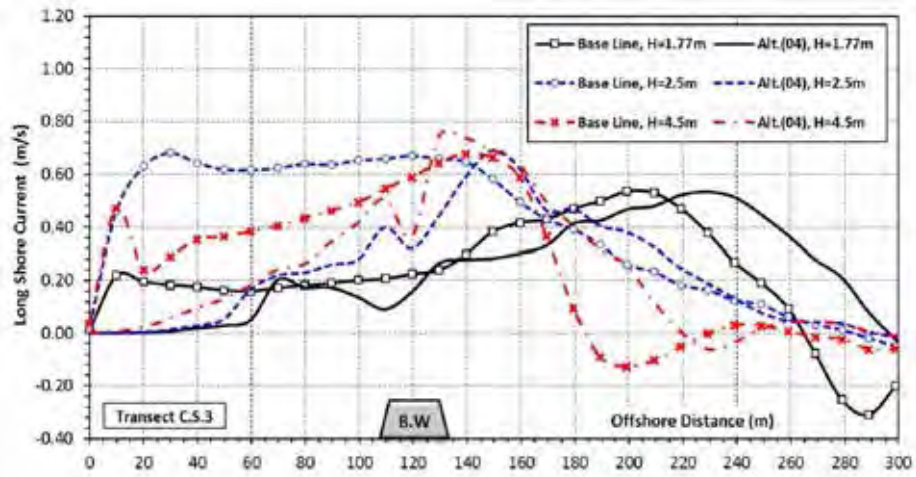


Fig. 19. Long shore current velocity along C.S.3 before/after construction of the perched beach

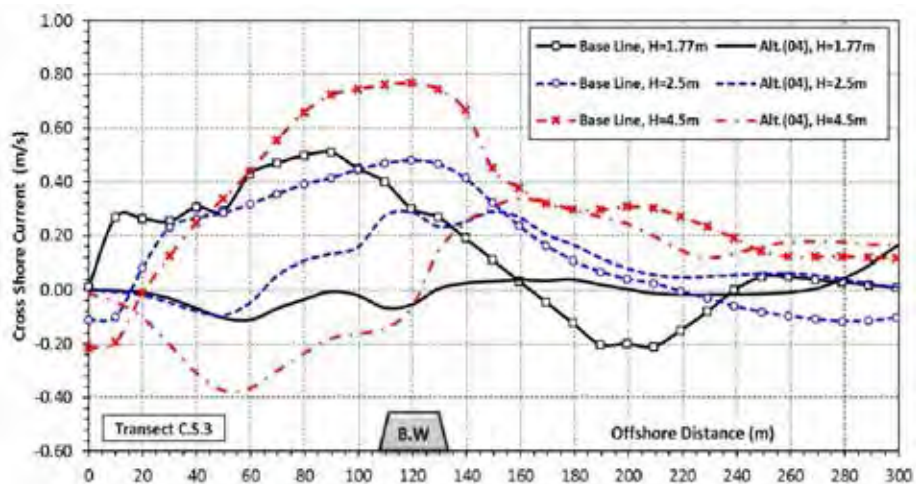


Fig. 20. Rip current velocity along C.S.3 before/after construction of the perched beach

4. ALTERNATIVES DISCUSSION

The proposed alternatives have various configurations including: submergence ratio of the breakwater, groin with/without gap and emerged/submerged groin. The alternatives have been compared from the point of view of wave height, currents velocities, flushing and shoreline changes. In the current discussions, it has been focused on the case of maximum deep water wave in summer, i.e., H=2.5 m.

4.1 Wave Height

Comparisons between the wave heights for the cases before and after construction of the perched beach are evident in (Fig. 21). The computations have been made for the different alternatives, as well, for various values of d/h (crest height/water depth), as shown in (Fig. 22). It is observed that wave breaking takes place over the submerged breakwater and small waves are transmitted to the protected area. These figures confirm that a partial standing wave is formed in front of the breakwater and nonlinear wave damping takes place over it with a smaller wave being transmitted to the onshore side. The results also suggest that wave energy dissipation depends greatly on breakwater height. It is shown that the higher the breakwater is, the lower the transmitted, but the slightly higher the reflected wave energies are. It has been found that the transmitted wave height is less than 0.60 m for the alternatives: Alt. (01), Alt. (02), Alt. (03), and Alt. (04) which have the same submergence ratio ($d/h=0.84$), which means that the site can be used for recreational purposes for most of the summer season. On the other hand, the transmitted wave height is more than 0.6 m for the alternatives: Alt. (05), and Alt. (06). (Fig. 23) shows that there is no significant effect on the wave height at the centerline of the perched beach due to the gaps in groin and the emerged/submerged groins. So, these wave conditions are considered as non-comfortable swimming conditions, as stated by [2] and hence these alternatives do not provide safe swimming conditions.

Computations have also been made for the transmission coefficient (K_t) using various well-known formulae available in literature. The values of the coefficient of transmission either computed by the empirical formulae or the results of the SMS model have been presented in (Fig. 24). It has been found that the value of K_t for the actual dimensions of the perched beach (Alt.04) is 24% as per the SMS model, but it is 22%, 38%, 45%, 52% and 68% as computed by [12,13,14,15,16], respectively. It can be concluded that the SMS model results agree reasonably with those computed by [12,13], but [15,14,16] show much higher values. Thus, only the results of [12,13] are considered applicable to the current perched beach. Generally, it can be stated that the maximum transmitted wave height in summer varies from 0.55 m to 0.95 m as computed by the SMS model, [12,13] formulae.

4.2 Current Velocity

The cross and long shore currents along the centerline of the perched beach for the different alternatives are presented in (Figs. 25-28) during high summer waves, i.e., $H=2.50$ m. It can be noticed that the rip currents before construction of the perched beach are more than 0.7 m/s, while they decrease after construction to 0.2 m/s inside the perched beach. Also, it can be noticed that the long shore currents are less than 0.2 m/s for a distance 60 m offshore, but after this distance they increase rapidly to reach 0.46 m/s, 0.68 m/s and 0.77 m/s in case of $d/h=0.84$, $d/h=0.72$ and $d/h=0.62$, respectively, and occur at the offshore toe of the submerged breakwater outside the perched beach. So, it can be confirmed that the higher the breakwater is, the lower offshore currents are. Also, attention should be given to design of the breakwater toe. Furthermore, swimming close to the offshore side of the breakwater is forbidden.

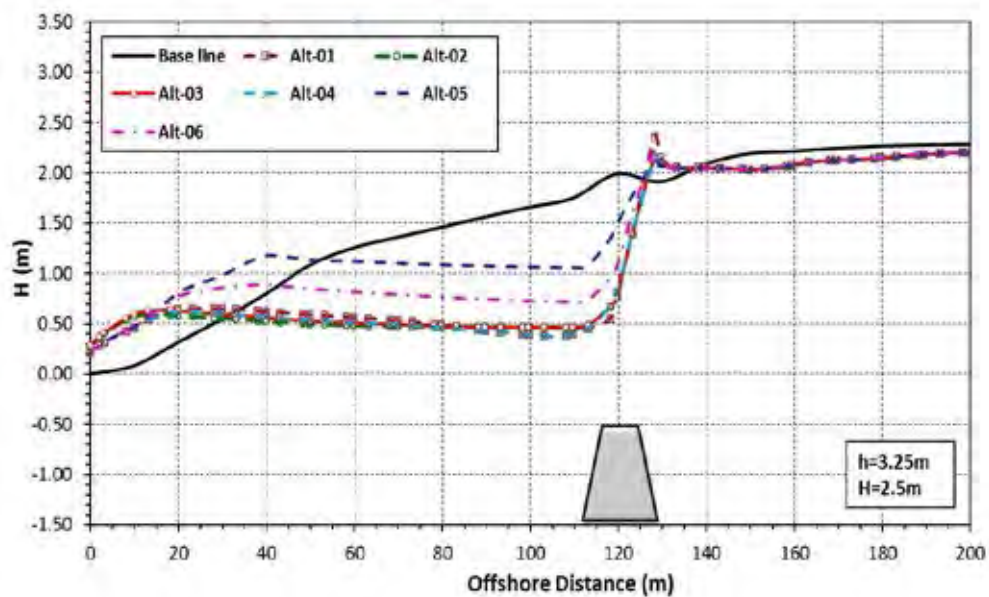


Fig. 21. Computed wave height along the centerline of the perched beach (H=2.50 m)

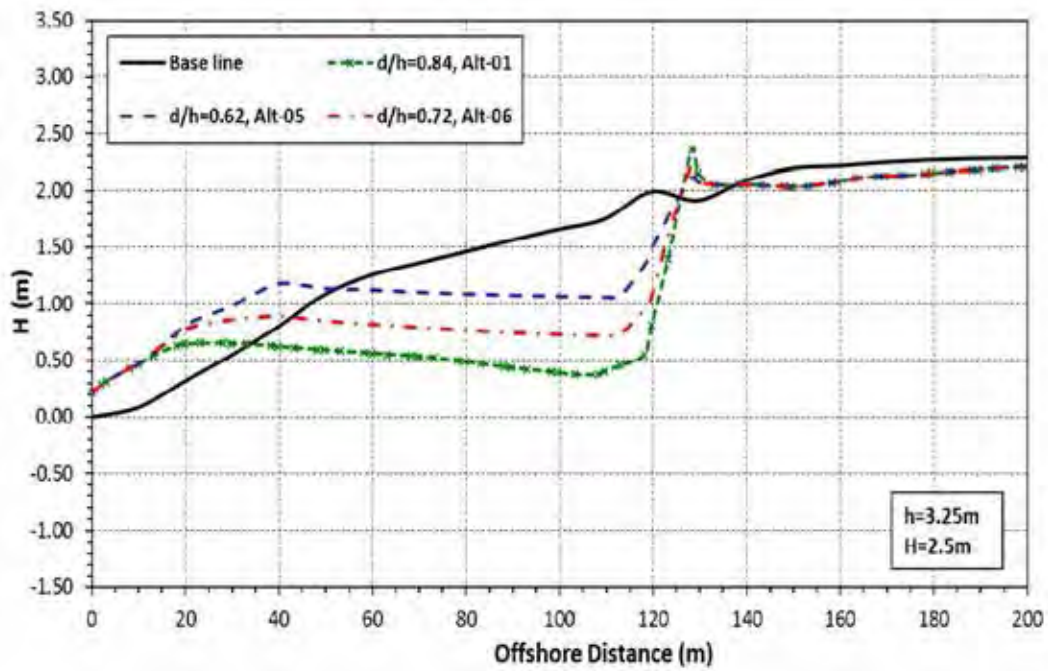


Fig. 22. Effect of d/h on the wave height at the centerline of the perched beach ($H=2.50\text{ m}$)

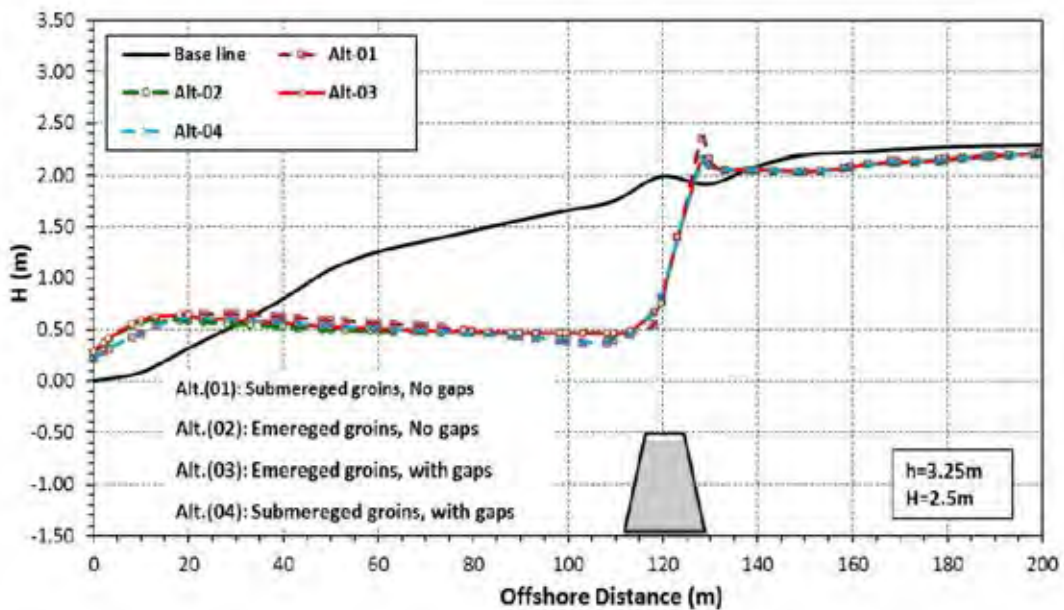


Fig. 23. Effect of the gaps in groin and the emerged/submerged groins on the wave height ($H=2.50\text{ m}$)

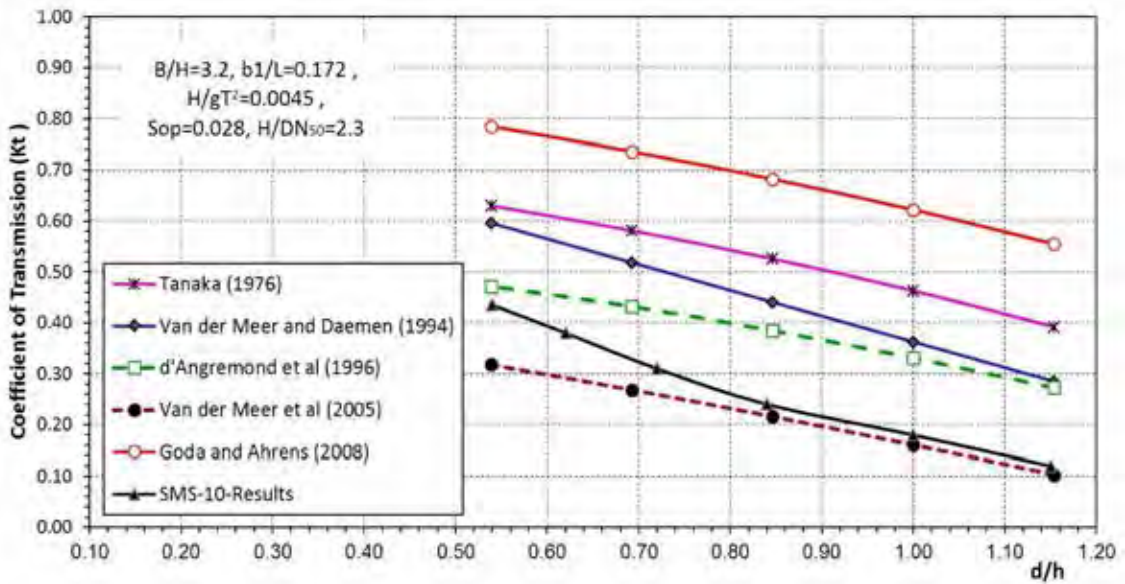


Fig. 24. Computed values of the transmitted wave height using various empirical formulae and SMS

Moreover, it can be observed that the effect of the submergence ratio (d/h) on the rip current is small compared to its effect on the long shore currents. The emerged/submerged groins have significant effect on the cross and long shore currents inside the perched beach. On the other hand, the gaps in the groin have no effect on the cross and long shore currents inside the perched beach, as shown in (Figs. 27-28).

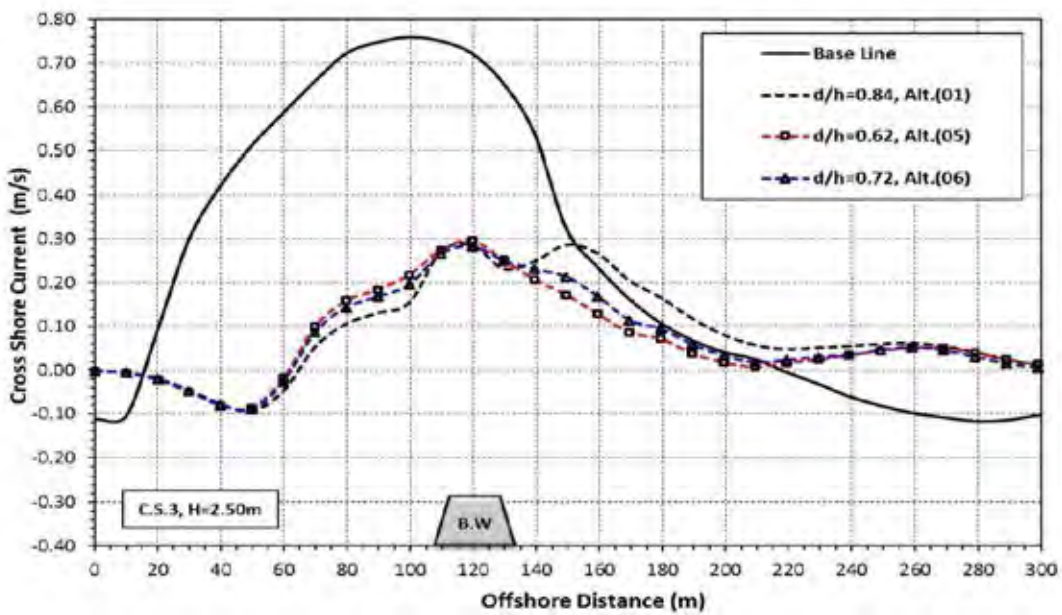


Fig. 25. Rip current velocity along the perched beach for various values of d/h

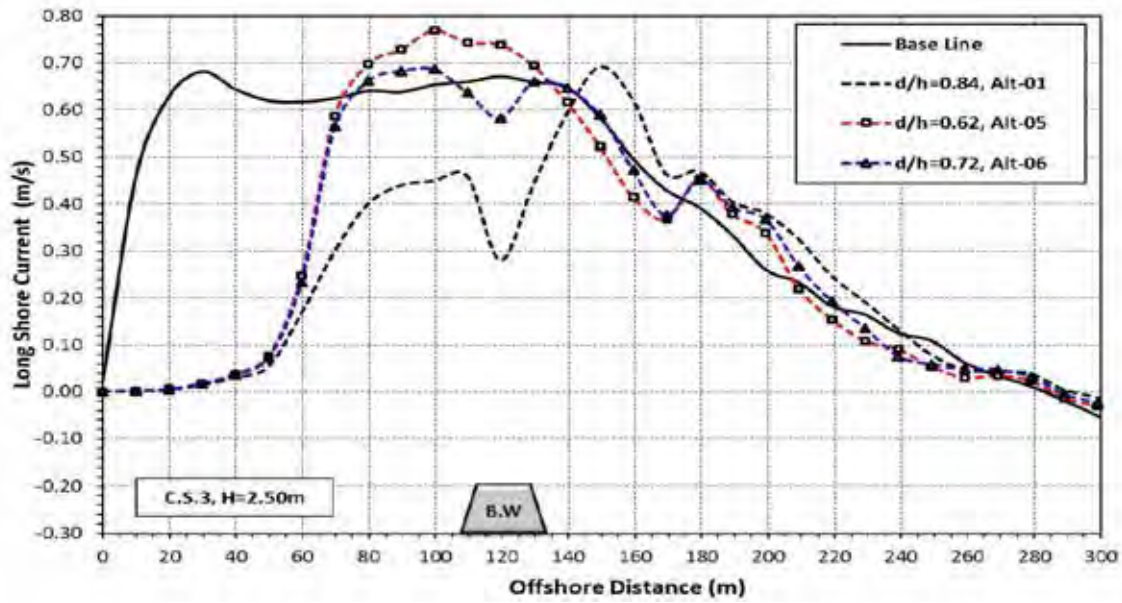


Fig. 26. Long shore current velocity along the perched beach for various values of d/h

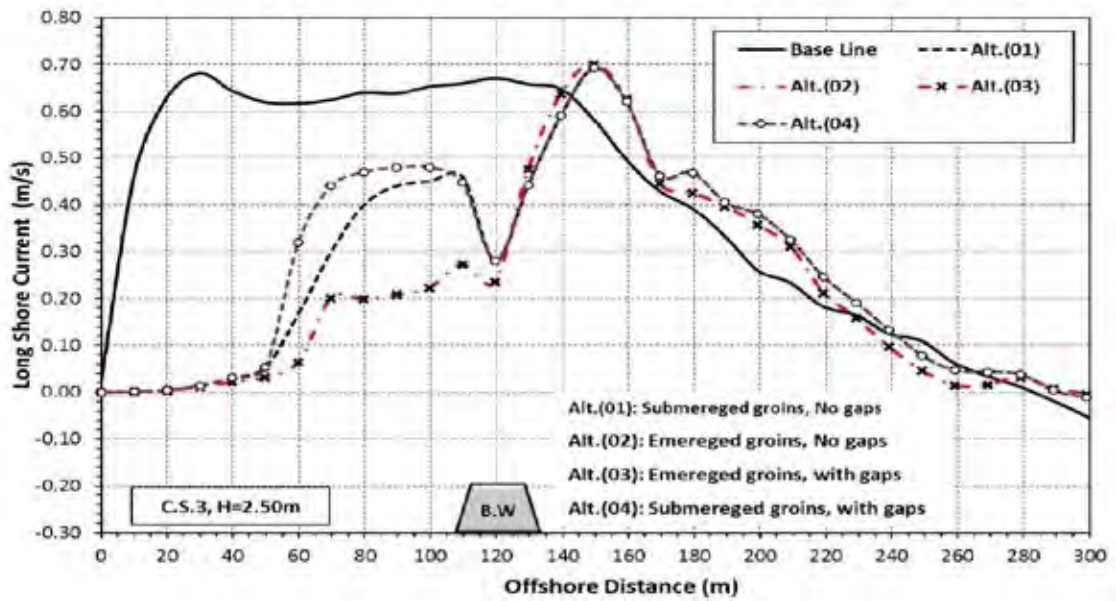


Fig. 27. Effect of the gaps in groin and the emerged/submerged groins on the long shore current velocity along the perched beach ($H=2.50$ m)

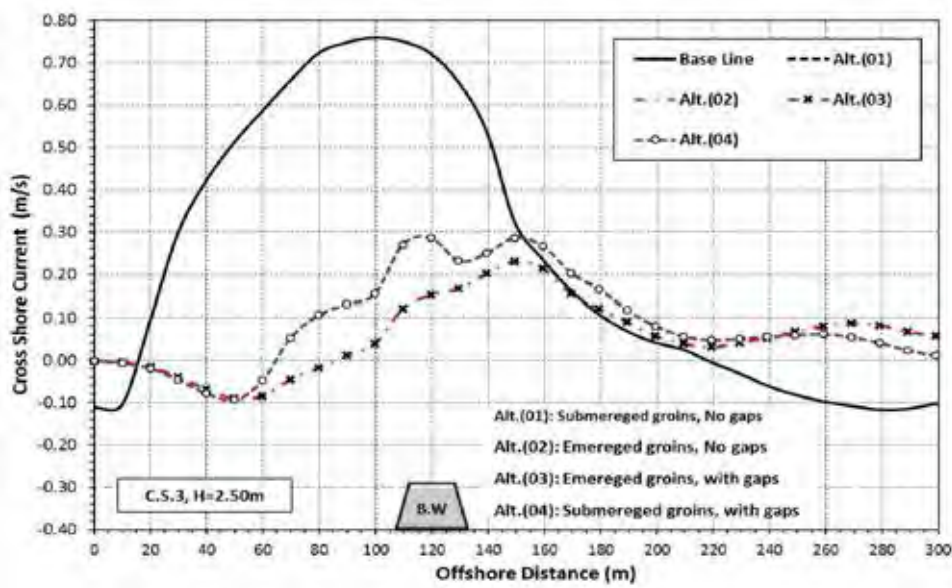


Fig. 28. Effect of the gaps in groin and the emerged/submerged groins on the rip current velocity along the perched beach (H=2.50 m)

4.3 Shoreline Changes and Flushing

Computations have been made using the GENESIS [5] program within the package of the SMS model for shoreline locations. Calibration has been made for the sediment transport model (GENESIS) using the bathymetric survey data conducted in 2009 and 2012, before commencement of construction of the perched beach, and the measured in 2013. (Fig. 29) shows the computed and measured shoreline changes after one year from the perched beach construction. A comparison was made between the computed and measured shoreline changes for different cases of different calibration coefficients (K1, K2) in the longshore sediment transport formula. The correlation shown in (Fig. 30) illustrate that the best values of the calibration coefficients for the study site are $K1=0.40$ and $K2=0.08$. According to the proposed, the long shore sand transport calibration coefficients, it can be observed that there are small differences between the computed and measured shoreline changes along the up drift and down drift of the structure.

Moreover, computations have also been made for predicting the shoreline changes after complete construction of the perched beach being in January 2013 with the results being presented in (Fig. 31) after 3 years later, i.e., 2016. The longshore sediment transport has been calculated based on the Ozasa and Brampton formula in the SMS model. The net transport has been computed over

three years of simulation, including seabed update. The computed net sediment transport rate that corresponds to the period 2009-2012, i.e., before construction of the perched beach, has been found to be $15000 \text{ m}^3/\text{year}$ and its direction is eastward. (Fig. 31) shows the shoreline at the west side of the perched beach progresses along the groin during the period 2013-2016.

The shoreline at the up drift side has been anticipated to progress for 13.3 m/year seaward in case of no gap (Alt. 01) and for 11 m/year if the gap is kept clear (Alt. 04) during the period 2013-2016 (Figs. 32-33). Thus accretion is slightly slower in case of the gap than in case of no gap. It can be stated that the gap allows some sediment to cross the groin into the perched beach and hence less accretion occurs at the up drift side. On the other hand, the down drift side has been found to erode at a slow rate. The shoreline at the down drift side has been found to retreat for 4.5 m/year in case of no gap (Alt. 01) and for 2.8 m/year if the gap is kept clear (Alt. 04). As well, erosion is slightly slower in case of the gap than in case of no gap. The accretion rate has been estimated by the numerical model and found to be 9600 to $200 \text{ m}^3/\text{year}$ at the up drift side. The corresponding erosion rate has been found to be 6850 and $5100 \text{ m}^3/\text{year}$ for the cases of no gap and gap, respectively. Although the erosion is generally within acceptable limits, the gap seems to considerably reduce the erosion rate and shoreline retreat.

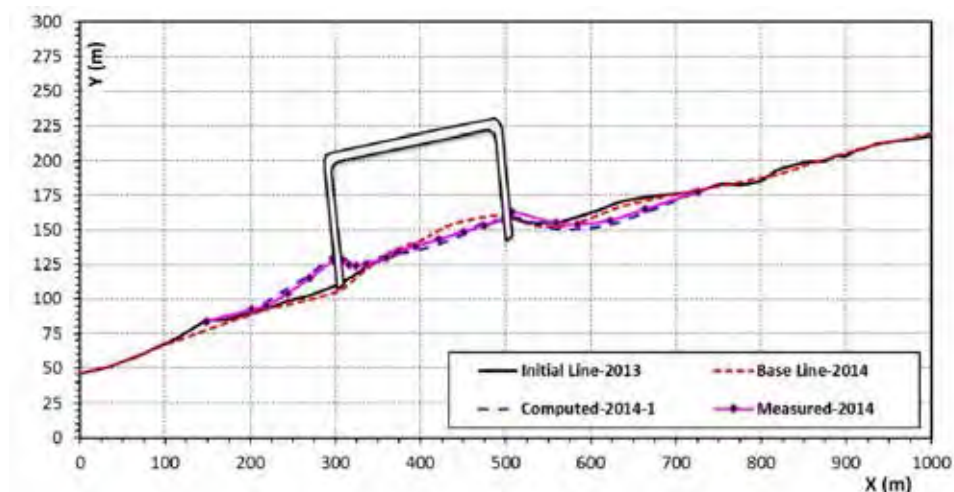


Fig. 29. Computed and measured shoreline changes around the perched beach

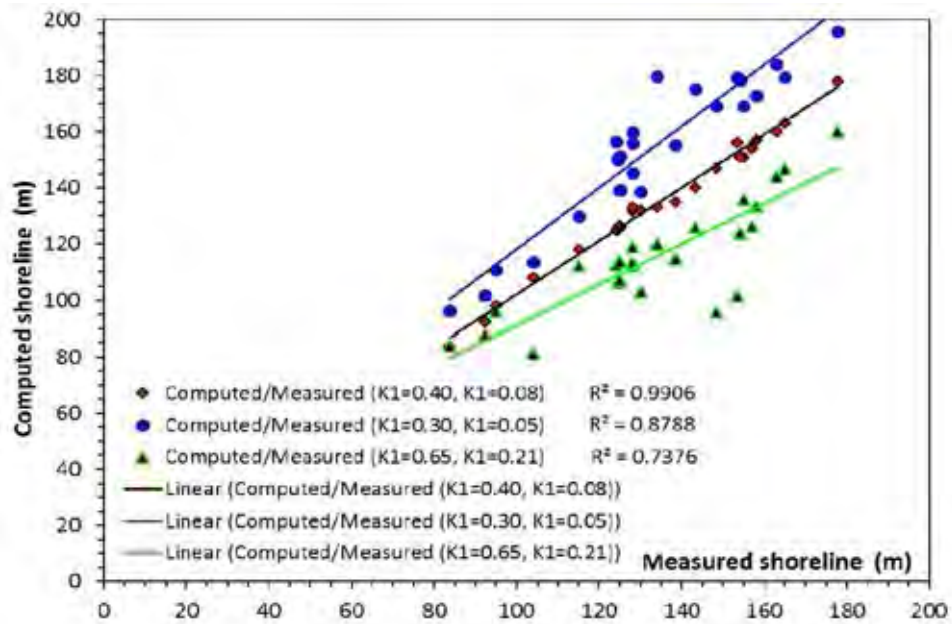


Fig. 30. Correlation of the computed and measured shoreline changes

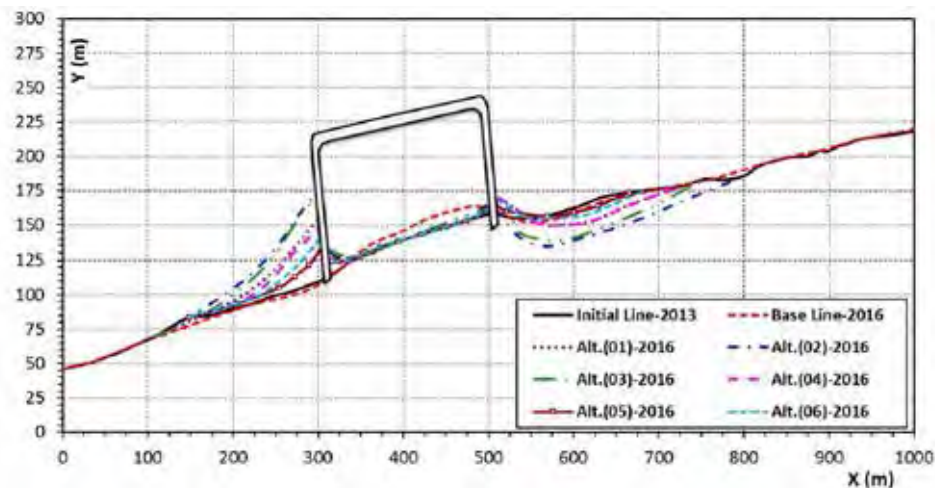


Fig. 31. Shoreline changes around the perched beach for various alternatives after 3 years of construction as compared with the case without a perched beach

Moreover, the submergence ratio has significant effect on the shoreline changes. The shoreline at the up drift side has been found to progress for 13.3 m/year, 9.3 m/year and 6.7 m/year toward the sea in case of $d/h=0.84$, $d/h=0.72$ and $d/h=0.62$, respectively. While, the shoreline at the down drift side has been predicted to retreat for 4.5 m/year, 2.5 m/year and 1.3 m/year toward the

shore in case of $d/h=0.84$, $d/h=0.72$ and $d/h=0.62$, respectively. The accretion rate has been found to be $9600 \text{ m}^3/\text{year}$, $4800 \text{ m}^3/\text{year}$ and $3600 \text{ m}^3/\text{year}$ at the up drift side. The corresponding erosion rate has been found to be $6850 \text{ m}^3/\text{year}$, $2400 \text{ m}^3/\text{year}$ and $2050 \text{ m}^3/\text{year}$ for the cases of $d/h=0.84$, $d/h=0.72$ and $d/h=0.62$, respectively (Figs. 32-33).

It can be observed that the emerged/submerged groins have significant effect on the shoreline changes along the up drift and down drift of the perched beach, as well. In case of emerged groins (Alt. 02) the shoreline at the up drift side progresses 20.0 m/year and the shoreline at the down drift side retreats 7.2 m/year . In case of submerged groins (Alt. 01), the shoreline at the up drift side progresses 13.3 m/year toward the sea and the shoreline at the down drift side retreats 4.5 m/year toward the shore. The accretion rate has been found to be $20160 \text{ m}^3/\text{year}$ and $9600 \text{ m}^3/\text{year}$ at the up drift side for Alt. 02 and Alt. 01, respectively. The corresponding erosion rate has been found to be $15900 \text{ m}^3/\text{year}$ and $6850 \text{ m}^3/\text{year}$ for the cases of emerged groins and submerged groins, respectively. Although the erosion is generally within acceptable limits, the submerged groins/breakwater seems to considerably reduce the erosion rate and shoreline retreat.

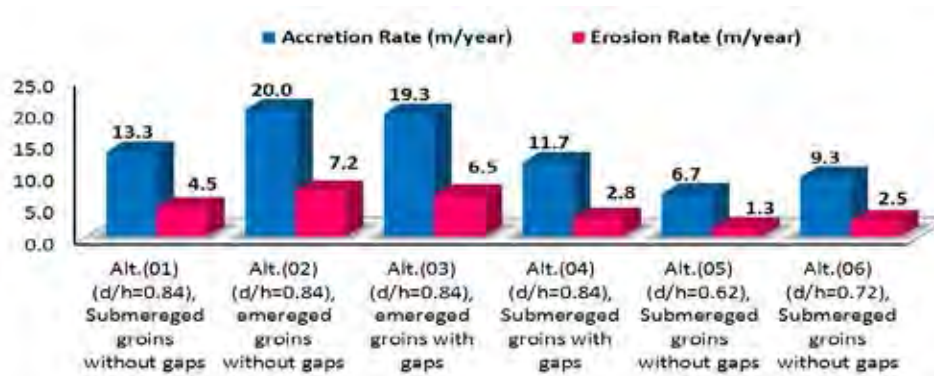


Fig. 32. Accretion and erosion rates around the perched beach for various alternatives

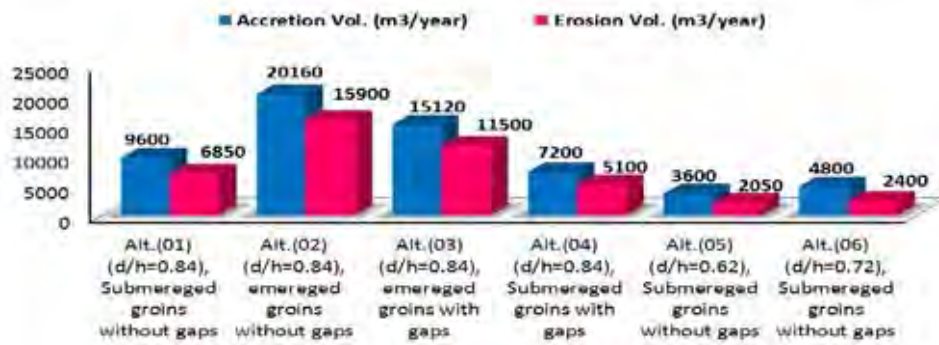


Fig. 33. Accretion and erosion volume rates around the perched beach for various alternatives

To minimize and mitigate erosion at the down drift, sand nourishment is considered to be the most straightforward soft approach. Thus, it is possible to move the sand from the accretion zone in the up drift to nourish the erosion area in the down drift. This will allow coarse sand particles deposited at the up-drift to nourish the erosion zone in the down drift instead of the finer particles, and hence erosion rates would decrease over time.

For the constructed alternative in the pilot area (Alt. 04), it is recommended to perform the sand transport once every 3 years to limit the maximum shoreline retreat to a maximum of 10 m while keeping the gap in good working condition. It is also evident that the shoreline at the up-drift side is almost unaffected by the perched beach after 100 m away from the west groin within the period of 2013-2016, which is less than the groin length. On the other hand, the extent of erosion at the down drift side is limited to about 200 m away from the east groin during the period 2013-2016, which is less than twice the groin length. The shoreline in the protected area has been found to be almost unaffected during the period 2013-2016 due to the low currents. It is noteworthy that the spacing between the groins in the protected area in 2013 and 2016 has been artificially made by dredging early in 2013 to adjust the beach profile in the protected area. The annual nourishment to mitigate the erosion at the down drift, is estimated to be 6300 m³. The grain size and schedules for the nourishment should be carefully prepared taking into account the social impact.

Further computations have been made for the flushing rate based on the relation between the tidal range and the structure height. It has been found that the

flushing rate inside the perched beach ranges from 2 to 3 days, during the frequent occurrence of summer storms ($H=2.5$ and 1.77 m) and is always less than 6 days most of the time. These values are in a good agreement with the required flushing time in hot climate, which is between 4 and 6 days. It is known that the long flushing time will lead to deterioration in the water quality.

4.4 Assessment of Alternatives

[2] Conclude that the comfortable swimming conditions exist when breaker heights are smaller than 0.6 m and current velocities smaller than 0.2 m/s. Furthermore, the required flushing time in hot climate is between 4 and 6 days. Based on the stated comfortable swimming conditions and the results data, it can be stated that the proposed alternatives are acceptable from a flushing point of view. It can be observed that the transmitted wave height and the current velocities are acceptable for the alternatives: Alt. (01), Alt. (02), Alt. (03), and Alt. (04) but are unacceptable for the alternatives: Alt. (05) and Alt. (06).

Although, the shoreline changes are minimal in case of alternatives: Alt. (05) and Alt. (06), nonetheless, these alternatives are unacceptable for the transmitted wave height and current velocities. Also, the flushing rate inside the perched beach is always less than 6 days in all alternatives. Moreover, the shoreline changes in case of alternatives: Alt. (05) and Alt. (06) are larger than the other alternatives.

It can be judged that the configurations of alternatives: Alt. (01) and Alt. (04) are the most suitable, but still Alt. (04) is the better due to the groin gaps effectiveness. Thus, it can be considered that the configurations of alternative (04) provide guidelines for the design of a perched beach within the Al-Arab Bay zone in Cell 5 of the North West coast of Egypt.

5. CONCLUSION

This study has been conducted to investigate the actual case of a perched beach as a pilot project along the North-West coast of Egypt. The main purpose of the perched beach is to provide safe swimming during the summer seasons for visitors of a coastal resort while minimizing the possible negative impacts on the environment. Investigations have been made for the case before and after construction of the perched beach to clarify the impacts of the pilot project using the

SMS numerical model. The results of the study can be used for the application of new coastal protection systems. The following points have been concluded:

D Large current velocities and eddies are generated offshore the submerged breakwater and offshore the west groin. The need for extra toe protection at these locations is far more evident than other locations. Attention should be given to bed scour and toe design.

D The wave energy dissipation depends greatly on breakwater height. It is shown that the higher the breakwater is, the lower the transmitted but the slightly higher the reflected wave energies are.

D The combined use of empirical formulae and the results of the numerical models to estimate the transmitted wave height and design of a submerged breakwater are useful tools in coastal studies especially along the North-West coast of Egypt. It has been found that the value of K_t for the actual dimensions of the perched beach is 24% as per the SMS model.

D The higher the breakwater is, the lower offshore currents are. It should be taken into consideration to pay close attention to the breakwater toe and to swim close to the breakwater due to large currents occurring around it.

D The effect of the submergence ratio (d/h) on the rip current is small compared to their effect on the long shore currents.

D The emerged/submerged groins have significant effect on the cross and long shore currents inside the perched beach. On the other hand, the gap in groin has no effect on the cross and long shore currents inside the perched beach.

D The accretion is slightly slower in case of the gap than in case of no gap. It can be stated that the gap allows some sediment to cross the groin into the perched beach and hence less accretion occurs at the up drift side. On the other hand, the down drift side has been found to erode at a slow rate.

D The submergence ratio has significant effect on the shoreline changes. Also, the emerged/submerged groins have significant effect on the shoreline changes along the up drift and down drift of the perched beach, as well.

D To minimize and mitigate the erosion at the down drift, sand nourishment is considered to be the most straightforward soft approach to beach erosion. This will allow coarse sand particles deposited at the up-drift to nourish the erosion zone in the down drift instead of the finer particles and hence erosion rate would become less over the time.

D The configurations of alternatives: Alt. (01) and Alt. (04) are the most suitable, but still Alt. (04) is preferred due to the groin gaps effectiveness. So, it can be considered that the configurations of Alternative (04) provide guidelines for the design of a perched beach within the Al-Arab Bay zone in Cell 5 of the North West coast of Egypt.

D For the constructed perched beach (Alt.04), it has been found that:

- The maximum length of erosion in the down drift (east of the jetties) is less than twice the jetty length and the shoreline retreats at less than 3 m/year, but the maximum accretion length is less than the jetty length and the shoreline progresses is less than 12 m/year. The rates of sediment transport up drift and down drift the perched beach are 7200 and 5100 m³/year, respectively, and sand nourishment is recommended once every three years. The residual adverse impacts could be generally alleviated through a routine sand nourishment program of the shoreline.

- The flushing rate inside the perched beach has been found to range from 2 to 3 days, during the frequent occurrence of summer storms (H=2.5 and 1.77 m) and is always less than 6 days most of the time. These values are in a good agreement with the required flushing time in hot climate, which ranges from 4 and 6 days.

COMPETING INTERESTS

Authors declare that there are no competing interests.

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*Kletsel M.Ya., Zhantlessova A.B., Zhalmagambetova U.K.,
Issabekova B.B.*

Structures and parts for fastening magnetosensitive elements in open conductors' protections

Abstract: There are four structures to fasten magnetically controlled elements (ME) near metal bus burs of electric installations of 6-220 kV. Attention is focused on arranging details that provide ME positions change in respect of bus burs. Describes how this position gets changed.

Keywords: conductors of electric installation phases, magnetically controlled elements, fasteners, clamps, plate, rod, the Planck scale.

Introduction. Article is devoted to the development of such structures for electric installations of 6-110 kV with a delta configuration of bus burs' conductors. Magneto sensitive elements (ME), on which relay protection of electrical installations can be performed [1-7], should be located at a safe distance near its conductor bus burs. This requires special structures and parts for fastening that provides the ability to adjust ME position, which for the majority of electric installations of new structures and parts have not been developed yet. ME shall be installed near the electric installation bus burs at a certain point M, for example, shown in Fig. 1, which coordinates depend on the protection feature on ME. When using magnetically controlled contacts (MC) – magnetic contacts [4-7] as ME, this must be done so that along longitudinal axis of the magnetic contact there was a magnetic field with induction:

$$\begin{aligned} \bar{B}_{\text{long}} &= \bar{B}_A \cos \alpha_1 + \bar{B}_B \cos \alpha_2 + \bar{B}_C \cos \alpha_3 = \\ &= \mu_0 (a_{MC} \bar{I}_A + b_{MC} \bar{I}_B + c_{MC} \bar{I}_C) / 2\pi, \end{aligned} \quad (1)$$

where \bar{B}_A , \bar{B}_B and \bar{B}_C – induction of magnetic fields at point M, generated by currents \bar{I}_A , \bar{I}_B and \bar{I}_C in conductors of phases A, B and C; α_1 , α_2 and α_3 – angles between the longitudinal axis of MC and inductions \bar{B}_A , \bar{B}_B and \bar{B}_C ;

$a_{MC} = \cos \alpha_1 / l_A$, $b_{MC} = \cos \alpha_2 / l_B$, $c_{MC} = \cos \alpha_3 / l_C$, μ_0 – magnetic conductivity of air, l_A , l_B and l_C - the distance from MC to conductors of phases A, B and C, respectively, greater than the minimum allowable by safety.

(1) shows, that, in general, to provide the necessary quantity of \bar{B}_{long} it is required to change the distance l_A , l_B , l_C and angles α_1 , α_2 and α_3 .

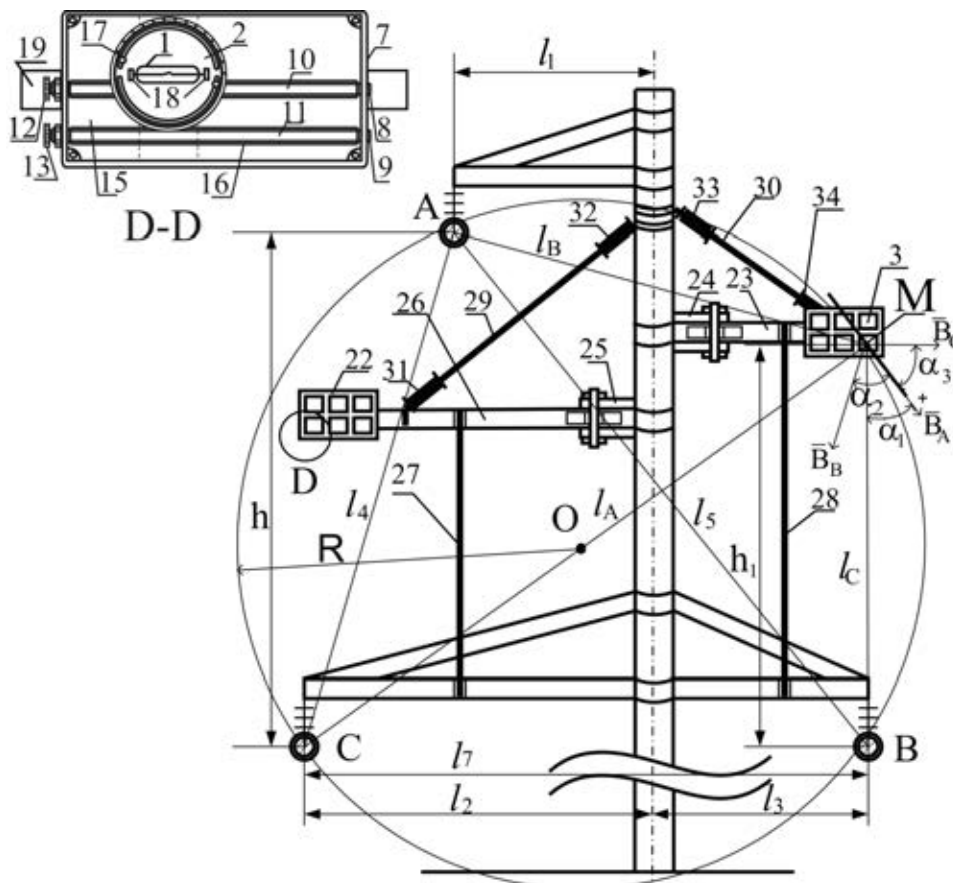


Fig. 1 - Structures and fastening them on power lines with unbalanced conductors

General details of the proposed structures: magnetic contact 1 (Fig. 1), plate 2 in the form of a circle with a thread, casing 3 consists of an upper part 4 (Fig. 2) with a scale, front part 5 with grooves 6 and side part 7 (Fig. 1) with holes 8 and 9, pins 10 and 11 with thread, handles 12 and 13 with a lock nut and rectangular window 14 (Fig. 2b), at the upper part of the casing 3, platform 15 (Fig. 1) with the sliders 16, and a hole with inner thread, locking screws 17, jaws 18 for magnetic

contacts (Fig. 1), tie-down lugs 19, clamps 20 (Fig. 2), bolts with thumb - nuts 21, plate 22, on which located six platforms 15 (on each platform one magnetic contact).

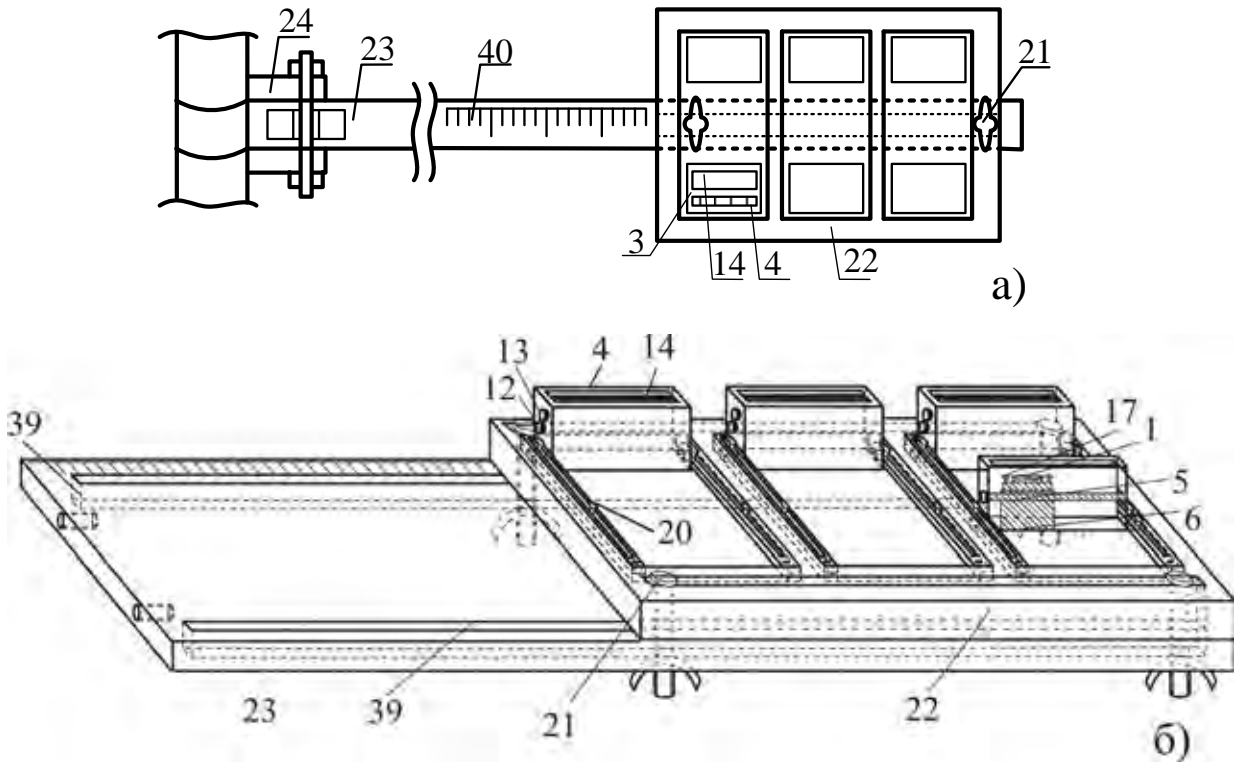


Fig. 2 – Plates with magnetic contacts

Such quantity is sufficient to perform measurement elements of all necessary protections. Platform dimensions ensure fastening of magnetic contact with balloon length up to 5 cm, such as the type of KEM-1, MKA and MKS. The housing 3, plates 2, pin 10 (11), handle 12 (13), platform 15, clamps 20, jaws 18, plate 22 and screws 17 are made of a nonmagnetic material such as stainless steel.

Plate 22 (Fig. 1) location can be varied along the strap length 23 with the scale 40 and the holes 39 using bolts with thumb - nuts 21 (Fig. 2a).

Structures for fastening and adjusting the position of magnetic contact near asymmetrical conductors of aerial circuit of 110-220 kV (Fig. 1).

To a steel reinforced concrete support using the first and second clamps 24 and 25 (Fig. 1) are fastened the first and second keeper strips 23 and 26, each of which is marked with a scale. Straps 23 and 26 are fastened with the first and second burs 27 and 28, mounted in parallel to support and ropes 29 and 30 by turnbuckles

31-34. Plates 22 fastened on keeper strips 23 and 26 with thumb - nuts 21 (Fig. 2a) with ability to move and fasten.

Position of the magnetic contact is adjusted by moving the magnetic contact 1 on the pin 10 on the plate 15 (Fig. 1), as well as plate 22 (Fig. 2a) to the left or right over the hole 39 in respect of the conductor of phase A along the length of the keeper strip 23 (Fig. 1) with bolts 21 (2a). Coarse adjustment of the distance h_1 between conductor and magnetic contact 1 in the vertical plane is achieved by fastening strap 23 on the support, and more precise by change in the position of the body with casing 3 and fixing of the tie-down lug 19 with clamps 20. Angle γ between the horizontal plane and the longitudinal axis of the magnetic contact 1 is changed by handle 13 (Fig. 1), which impacts on the plate 2.

Quantitative assessment of the angle change is displayed by grading on the plate 2, which can be seen through the window 14 of the upper part of the casing 3, you can change the angle without removing the casing that protects ME from the environment. It is easy to see that all this allows you to set any ME at any desired point even in complex cases, such as when it *acts as a filter of zero sequence currents* should be placed on a circle centered at the point O with the radius $R = l_4 l_5 / 2h$ (l_4 - distance between phases A and B; l_5 - distance between the phases B and C, h - the vertical distance from phase A to C, and the longitudinal axis of the magnetic contact 1 should fit with the tangent to this circle.

Structures for fastening and adjusting ME near symmetrical conductors of 6-110 kV.

Structure [8] for conductors of 6-10 kV is shown in Fig. 3. In comparison with the previous it further includes fastening curved rods 35, 36 and the rectilinear rod 37 (Fig. 3).

Plate 22 location can be changed along the rod 36 length with a scale using bolts with thumb - nuts 21 (Fig. 3). Rods 35, 36 are attached to the tops of a regular triangle 38 (insulators with conductor lines also attached to it) and to the rod 37 with mounting clamps 24 (Fig. 3). Magnetic contact position is adjusted the same way as in the previous structure, but the movement in the vertical plane is possible only by changing the casing 3 position.

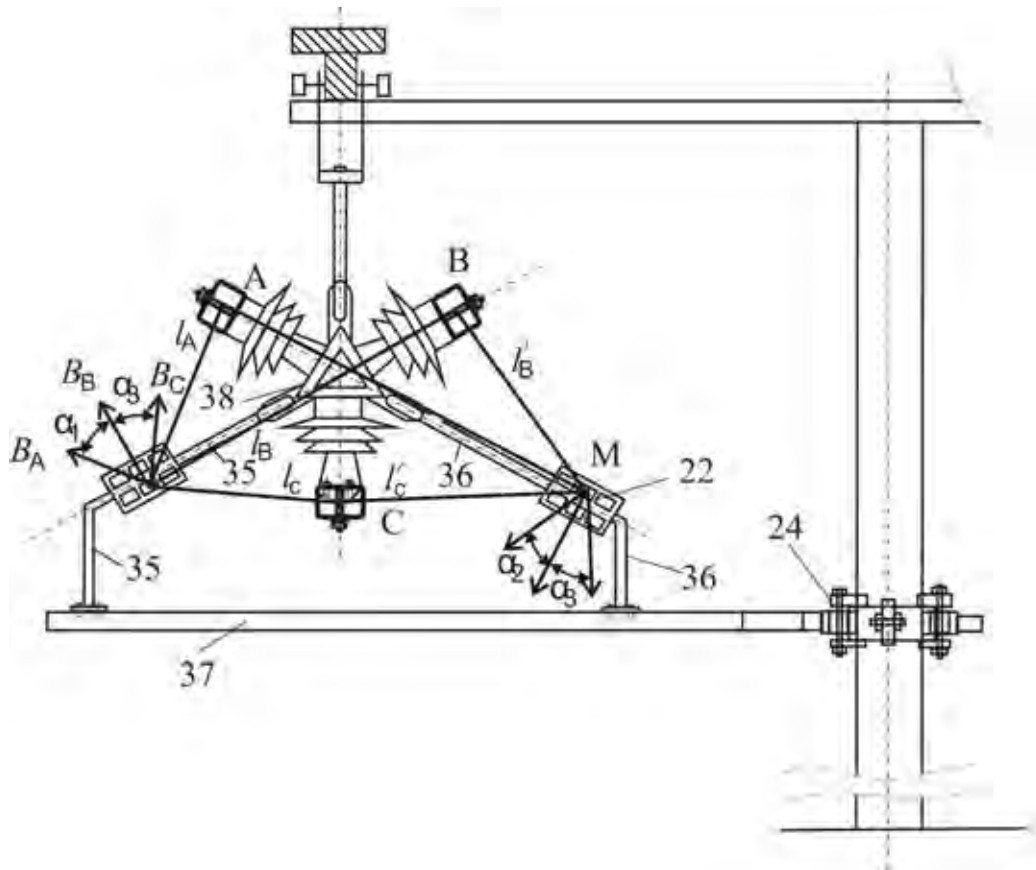


Fig. 3 – Fastening the structure on the conductors of 6-10 kV

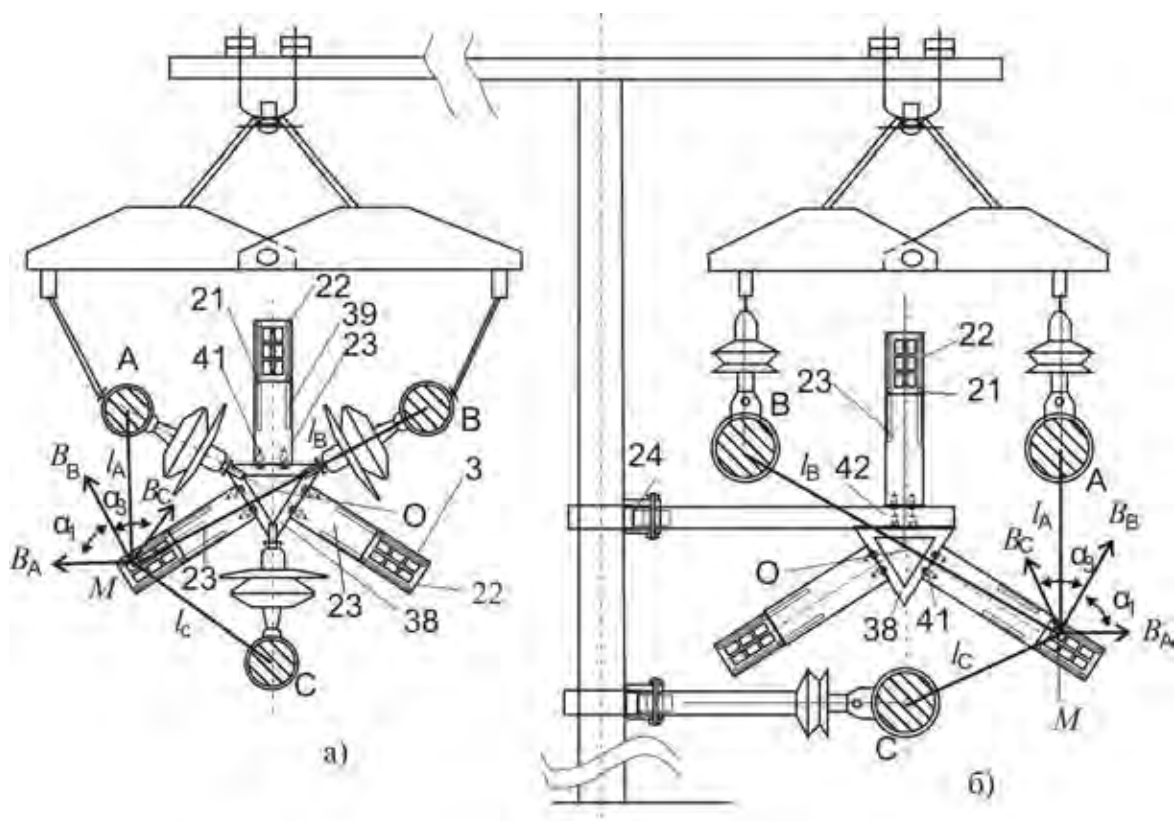


Fig. 4 – Fastening the structures on conductors of 35-110

Structure [9] for conductors of 6-35 kV is shown in Fig. 4. Fastening is made by means of strap 23 with holes 39 and with the scale 40 (Fig. 2a), bolts 41 (Fig. 4a), which fasten the strap 23 to triangle 38. Unlike the previous, strap 23 has a width matching the width of the strap 22. The mechanism of changing the MC position is the same as in the structure of 6-10 kV.

Structure [10] for conductors of 35-110 kV. Unlike the previous structure includes the additional plate 42 (Fig. 4b), which is fastened to the support with the clamp 24 and is attached to the right triangle 38 and one of the plates 23 also fastened with bolts 41. Adjusting ME position is the same as in the previous structures.

Conclusion. Structures developed by the authors to fasten magnetically controlled elements at given points near conductors of the electrical installation provide the possibility of building relay protection for it on ME, through simple adjustment of movement in the vertical and horizontal planes in respect of conductors and change the angle between these planes and the longitudinal axis of the ME, as well as the presence of protective casing, not preventing these actions.

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Gennady Ivanov,

*Kazan State University of Architecture and Engineering,
Candidate of Technical Sciences, Associate Professor,*

Bulat Umarov,

*Kazan State University of Architecture and Engineering,
Master's Degree Student*

Concrete ceiling panels, reinforcing by concrete timbers with pre-stressed re-bars inside

Abstract: This refereed article is about a method of reinforcing of concrete ceiling panels of buildings and constructions using rebar mats, re-bars and concrete timbers with pre-stressed re-bars inside. Middle of spans and abutments areas are considered. In that areas concrete decks has zones where tensile forces are exist. Mixed reinforcing with traditional rebar mats and concrete timbers with pre-stressed high-strength re-bars inside is used. We offer a method of reinforcing of bridge decks with fixed thickness that ensures high strength and crack resistance of concrete and prevent from tangent line and normal line cracks.

Keywords: continuous ceiling panels, reinforced concrete, concrete deck, reinforcement, concrete timbers.

Геннадий Иванов,

*Казанский государственный
архитектурно-строительный университет,
доцент, кандидат технических наук,*

Булат Умаров,

*Казанский государственный
архитектурно-строительный университет,
магистрант*

***Монолитные перекрытия, армированные
напряженными железобетонными брусками***

Аннотация: Статья посвящена разработке способа армирования конструкций монолитных плит перекрытий зданий и сооружений, армированных сетками из стержневой арматуры и предварительно-напряженными железобетонными брусками. Рассматриваются пролетные и опорные участки, где монолитные плиты испытывают растягивающие усилия. Конструирование плиты производится по принципу применения смешанного армирования обычными сетками и напряженными брусками, армированные высокопрочной напрягаемой арматурой. Предложены схемы армирования монолитных плит постоянной толщины, которые направлены на повышение прочности и трещиностойкости по образованию нормальных и наклонных трещин.

Ключевые слова: неразрезные перекрытия, железобетон, монолитная плита, арматура, железобетонные бруски.

В практике проектирования общественных и гражданских зданий различного назначения часто встречаются случаи необходимости применения большепролетных перекрытий из монолитного железобетона под тяжелые временные нагрузки. К таким зданиям следует отнести: подземные и многоуровневые стоянки легковых автомобилей, торговые павильоны, рестораны, фойе кинотеатров и др. Применение монолитных перекрытий при больших пролетах часто становится проблематичным. В каркасных зданиях наибольшее применение получили безбалочные монолитные перекрытия с толщиной плиты 30 см при сетке колонн 9×9 м и с квадратными в плане капителями 3×3 м толщиной 30 см. В этом случае мы имеем перекрытия с пролетами участков плиты в свету 6 м, что реально исполнимо для восприятия временных нагрузок от легковых автомобилей на парковочных местах подземных и многоуровневых автостоянок и др. Такие перекрытия по длине имеют двухзначную эпюру растягивающих усилий: в пролете длиной порядка $0.6 L$ и на опорных участках, длиной порядка $0.2 L$ от оси опоры в каждую сторону.

С целью повышения прочности и трещиностойкости монолитной плиты перекрытия армирование таких плит рекомендуется производить как обычной ненапрягаемой стержневой арматурой, так и предварительно-напряженными железобетонными брусками, выполненными из высокопрочного безусадочного литьевого бетона на основе сухих смесей [1, с. 38-41]. Верхнее рабочее армирование плит отдельными сетками рекомендуется выполнять на длине по 0.25

от длины перекрываемых пролетов L в каждую сторону от оси опоры (см., например, [2, с. 67]). Для экономии арматуры в этих случаях рекомендуется применять основное армирование по всей плоскости плиты и дополнительное армирование между стержнями продольной арматуры основного армирования на длине по $0.25 L$.

В технической литературе, например, [3, с. 366] предложен способ армирования опорных участков плит двумя отдельными сетками, или отдельными стержнями продольной арматуры, со смещением стержней сеток по $0.15 L$ и $0.25 L$ от оси опоры. Такой способ армирования монолитных плит также применяется с целью экономии арматуры.

Общеизвестно, что армирование плит обычной ненапрягаемой арматурой не влияет на момент образования нормальных трещин, а оказывает существенное влияние только на их последующее раскрытие. Для повышения трещиностойкости бетона конструкций монолитных плит по образованию трещин, нормальных к продольной оси плиты, рекомендуется применять предварительное обжатие. Ранее нами в статье [1, с. 38-41] был рассмотрен вариант армирования монолитной плиты в опорных сечениях сталежелезобетонных пролетных строений предварительно-напряженными брусками по техническому решению [5]. Армирование монолитных плит в опорных сечениях предлагается производить по двум участкам, согласно рис. 1 и рис. 2:

- участок 1 длиной $L_1=0.15 L$ – продольной арматурой сеток и напряженными железобетонными брусками;
- участок 2 длиной $L_2 = (0.25 L - L_1)$ – продольной арматурой сеток.

Армирование верхней зоны плиты на опорном участке железобетонными брусками может выполняться двумя способами в зависимости от длины перекрываемых пролетов. При длине пролетов до 21 м применяются одиночные цельные брусочки длиной с учетом выпусков напрягаемой арматуры: $0.3 \times 21 = 6.3$ м при опалубочной длине брусочки марки Бр-1 5.3 м. При пролетах 24 м и более применяются составные брусочки, состоящие из двух модульных элементов марок: Бр-1 и Бр-2. В этом случае длина брусочки будет определяться как: Бр-1 + 2Бр-2. До проектной длины брусочки собираются на специальных стендах. Крайние брусочки Бр-2 снабжены выпусками пространственных каркасов и напрягаемой арматуры с анкерами на концах. Промежуточные рядовые модульные брусочки марки Бр-1 по торцам снабжены стальными колпаками, пластины которых

заанкерены в теле бетона бруска. Соединение модульных элементов между собой выполняется отдельными стержнями-коротышами, закрепленными на сварке к пластинам брусков. Армирование нижней зоны плиты в опорных сечениях железобетонными брусками выполняется с целью повышения прочности и трещиностойкости по образованию трещин, наклонных к продольной оси плиты. Длину брусков, марок Бр-4, следует принимать в зависимости от толщины монолитной плиты не менее bh . Бруски устанавливаются, согласно рис. 2 (сечение 3-3), на поперечную арматуру нижней сетки, стержни которой установлены с шагом 200 мм на фиксаторы защитного слоя бетона. По отношению к брускам верхней зоны бруски нижней зоны следует размещать в смежных ячейках сетки.

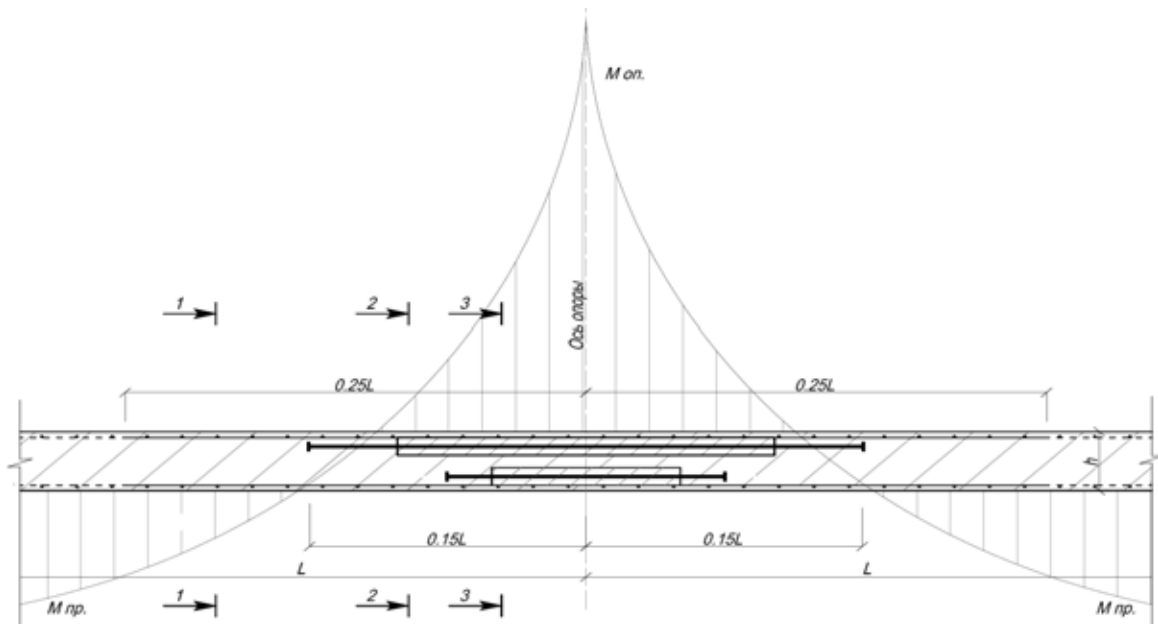


Рис. 1. Армирование плиты на опорном участке

Армирование средней части пролета плиты приведено на рис. 3 и рис. 4. В средней части пролета продольная арматура плиты принята по типу армирования верхней зоны сечения плиты в опорном в сечении 2-2 с зеркальным расположением рабочей арматуры сеток и железобетонных брусков в нижней растянутой зоне плиты. Армирование плит железобетонными брусками выполняется на длине $0.6 L$ составными брусками длиной: Бр-1 + 2Бр-2.

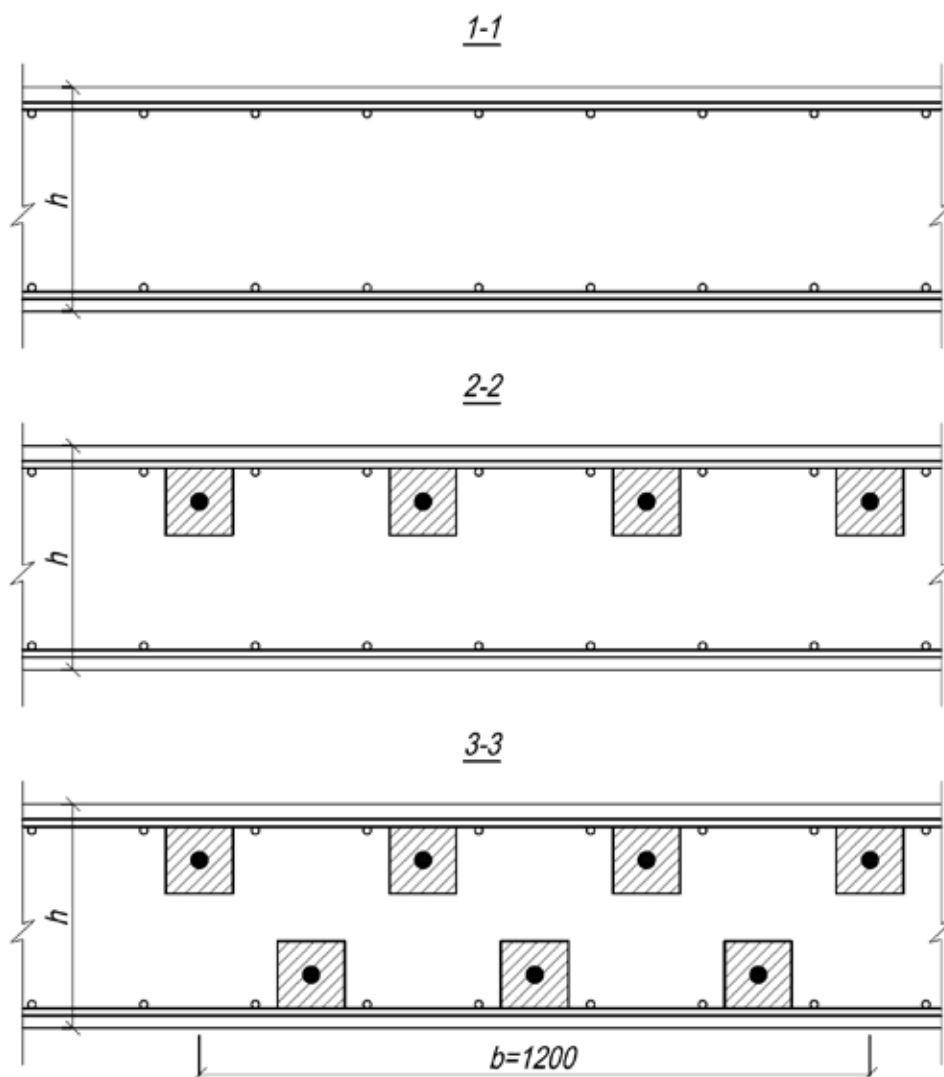


Рис. 2. Сечения плиты на опорном участке: 1-1, 2-2, 3-3

Предлагаемая схема армирования неразрезных монолитных плит перекрытий включает рабочую арматуру сеток с ячейкой 20x20 см и продольную «арматуру» в виде предварительно-напряженных железобетонных брусков. Поперечные сечения предлагаемых конструкций монолитных плит и принципы их конструирования в работе предлагается рассматривать исходя из критерия минимизации трудоемкости работ по созданию предварительного напряжения бетона, рассматривая применение заранее изготовленных предварительно-напряженных железобетонных брусков из высокопрочного безусадочного бетона классов по прочности на сжатие не менее В50. В этом случае, в зависимости от длины перекрываемых пролетов, предварительно назначаются толщина плиты и длина брусков.

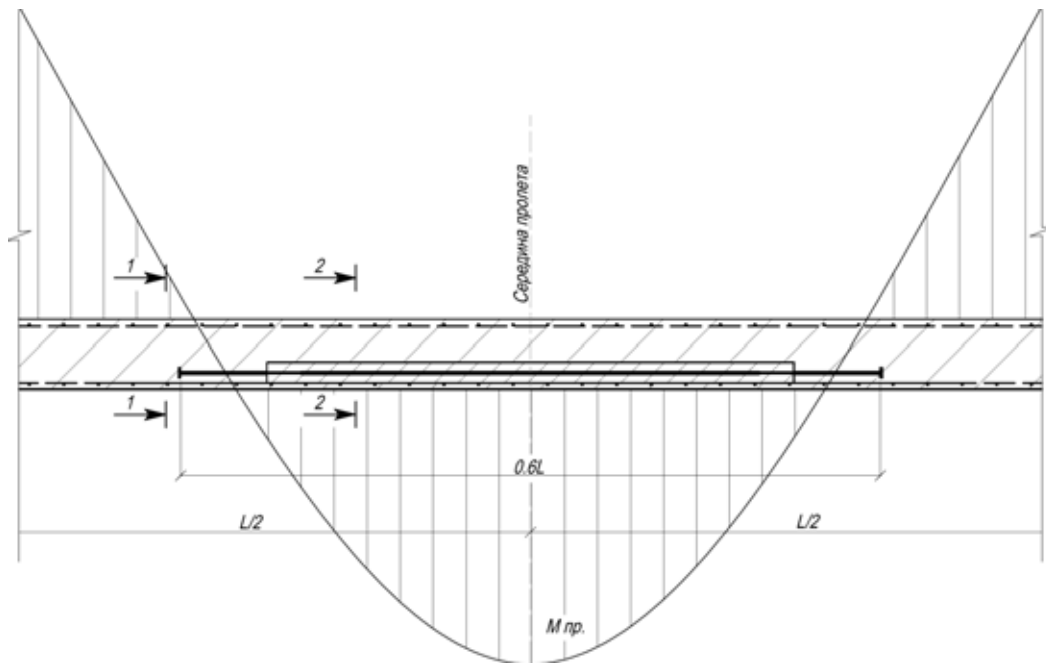


Рис. 3. Армирование плиты в средней части пролета

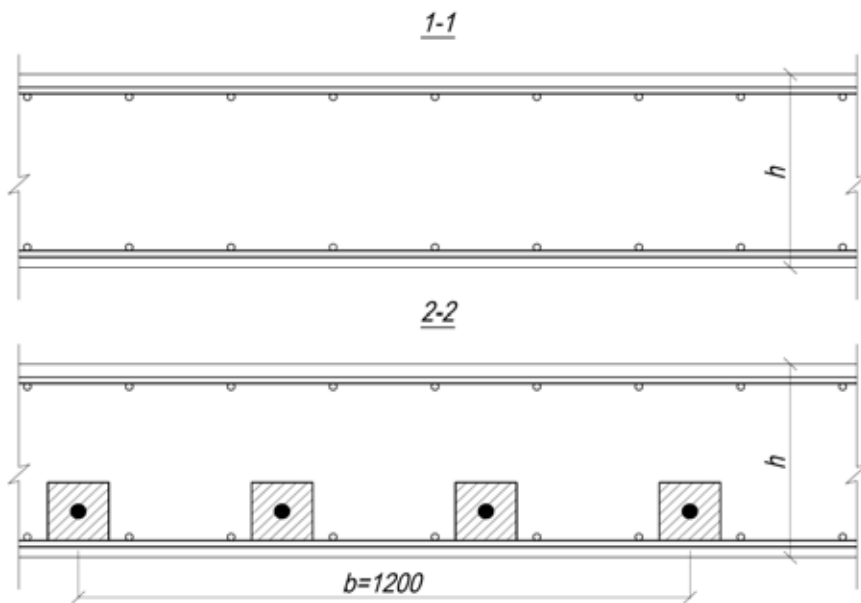


Рис. 4. Сечения плиты в пролете: 1-1 и 2-2

Трещиностойкость бетона плиты, в этом случае, определяется нормативной прочностью бетона на растяжение брусков и монолитного бетона плиты, напряжениями обжатия железобетонных брусков и упругопластическим моментом сопротивления их приведенных сечений. Момент образования трещин, нормальных к продольной оси плиты в опорном и пролетном сечениях, при их армировании напряженными железобетонными брусками, необходимо опреде-

лять при расчетной ширине плиты 120 см, с учетом [4, с. 47], согласно следующей формулы:

$$M^H \leq M_{crc} = 0.85[R_{bt.ser1} * W_{pl1} + (R_{bt.ser2} + \sigma_b) W_{pl2}], \quad (1)$$

где: $R_{bt.ser1}$, $R_{bt.ser2}$ – нормативные сопротивления бетона на растяжение, соответственно для монолитного бетона и бетона брусков;

W_{pl1} , W_{pl2} – упругопластические моменты сопротивления соответственно для бетонного сечения плиты и железобетонных брусков.

σ_b – напряжение обжатие бетона брусков.

Заключение: Применение предварительно-напряженных брусков для армирования монолитных плит перекрытий и плитных пролетных строений мостовых сооружений позволяет повысить их прочность и трещиностойкость нормальных и наклонных сечений, не применяя трудоемкие процессы предварительного напряжения монолитного бетона конструкций плит на строительной площадке способом натяжения арматуры на бетон.

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*Dimitry Shuvaev, National Research
Lobachevsky State University of Nizhny Novgorod,
Associate Professor, Ph.D., Institute of Open Education*

The history of mechanics and historical chronology problems

*Димитрий Шуваев, Нижегородский государственный
университет им. Н.И. Лобачевского, доцент,
кандидат технических наук, институт открытого образования*

История механики и проблемы исторической хронологии

Цель настоящей работы – проанализировать некоторые факты истории механики в контексте проблем исторической хронологии. **Задача** этой работы состоит в том, чтобы донести до научно-педагогической общественности упомянутые проблемы, в том числе в связи с изложением учебного курса «История и методология механики».

Автор с 1996 г. читает этот курс на механико-математическом факультете Нижегородского государственного университета им. Н.И. Лобачевского для магистрантов, проходящих подготовку по направлениям «Механика и математическое моделирование» и «Прикладная математика и информатика».

Изучение курса, относящегося к числу базовых в магистратуре, позволяет студентам получить представление о пути, пройденном наукой, увидеть её в развитии, осознать внутреннюю логику развития классической механики и взаимосвязи между теоретическими и практическими исследованиями. Материал курса «История и методология механики» позволяет студентам систематизировать знания в области классической механики, видеть и использовать закономерности и взаимосвязи внутри механики и между механикой и иными областями знания, проследивать историю развития классической механики и смежных дисциплин в контексте событий всемирной истории и истории развития

производительных сил, анализировать прошлое для понимания настоящего и предвидения будущего науки, понимать на фактах биографий творцов науки ход и развитие их творчества и научных идей.

По истории и методологии механики имеются глубокие и содержательные книги, на русском языке изданы полезные учебно-методические разработки [1-3], а также публикации в научной периодической печати, в частности [4].

Построение и изложение истории науки, как и общей истории, невозможно без использования хронологии. Поэтому частью вступительного раздела курса является вопрос о взаимосвязи истории механики и исторической хронологии.

Историческая хронология – вспомогательная историческая дисциплина, определяющая даты различных событий и документов на основании изучения и сопоставления письменных и (или) археологических источников. Историческая хронология привязывает исторические события к определённым датам, которые в свою очередь определяются принятым летоисчислением. Летоисчисление опирается на *календарь* как на систему счисления длительных промежутков времени, в основе которой лежат периодически повторяющиеся явления природы, определяемые движением Земли.

Анализ проблем общепринятой хронологии осуществляется уже в течение столетий, начиная практически со времени её создания.

Разработчиком общепризнанной ныне версии исторической хронологии Античности и Средневековья является Иосиф Юстас Скалигер (1540–1609), французский гуманист итальянского происхождения, философ, математик, историк, филолог. Он работал в Париже и Лейдене. Исследования И.Ю. Скалигера («Исправление хронологии», 1583) были продолжены и в основном завершены его учеником и последователем Дионисием Петавиусом (1583–1652). Заметим, что имя И.Ю. Скалигера известно только специалистам. Историки как будто стыдятся автора своей хронологии, современника мушкетёров короля и гвардейцев кардинала.

Версия исторической хронологии Скалигера-Петавиуса, составленная, прежде всего, в целях привязки даты рождения Христа к началу новой эры и опирающаяся на научные данные конца 16 века, по-видимому, не без оснований, подвергается критике в работах И. Ньютона (1643–1727), Ж. Гардуэна

(1646–1729), Э. Джонсона (1842–1901), Н.А. Морозова (1854–1946), А.Т. Фоменко (р. 1945) и др.

Так, великий Исаак Ньютон [5] в течение 40 лет перерабатывает хронологию Древнего Египта и частично Античности на основе анализа практически всех известных в его время древних источников. В результате история Древнего Египта, охватывающая по версии Скалигера-Петавиуса более чем двухтысячелетний период (примерно от 3000 до н.э.), «сжимается» И. Ньютоном в промежуток в 330 лет: от 946 до 617 г. до н.э.

Выдающийся русский естествоиспытатель и организатор науки Н.А. Морозов, основываясь на анализе сопоставления исторических событий и астрономических фактов, как безусловной базе построения любой исторической хронологии, приходит к убеждению, что *история* Античности и Средневековья *искусственно растянута*. Его критика версии хронологии Скалигера-Петавиуса основывается на отсутствии реальных доказательств её справедливости, а также обнаруженных многочисленных повторах и «дубликатах» исторических событий разных эпох. Н.А. Морозов делает вывод о том, что как известные древние тексты, так и сама история Античности и Средневековья – результат масштабной фальсификации.

Известный российский математик, академик РАН, профессор МГУ А.Т. Фоменко [6], с начала 90-х гг. прошлого века критикующей версию хронологии Скалигера-Петавиуса, также основывается на математическом и компьютерном анализе современных астрономических данных в их сочетании с историческими фактами. Отвергая в целом возможность *фальсификации истории*, А.Т. Фоменко не подвергает сомнению подлинность древних документов и исторических событий, но, подтверждая факты, свидетельствующие об искусственном удлинении во времени истории Средневековья, делает вывод о *фальсификации хронологии*. В результате появляется гипотеза об «Античности в Средневековье», в соответствии с которой эпоха Возрождения хронологически следует практически сразу за периодом Античности и «возрождением» в собственном смысле слова не является, а является естественным и непосредственным продолжением и развитием античной эпохи в 8-12 веках. Следуя этой гипотезе, 2-10 века в хронологии Скалигера-Петавиуса, как и у Н.А. Морозова, искусственно заполнены фактами, представляющими собой повторы, или дубликаты реальных исторических событий.

Научная проблема, таким образом, состоит в том, что, в соответствии с используемой версией хронологии Скалигера-Петавиуса, развитие механики, впрочем, как и математики, и астрономии, претерпевает в Средневековье разрыв, наличие которого разумно обосновать и логически объяснить достаточно трудно. Значение же решения этой проблемы заключается, разумеется, в установлении истины.

Так, следуя общепринятой исторической хронологии, можно указать группу последних по времени античных учёных, связанных с математикой и механикой, в 1-2 веках н.э. Это – легендарный Герон Александрийский (2 в. до н.э.-1 в. н.э.), о жизни которого практически ничего неизвестно, и великий Клавдий Птолемей (100?-178?), о жизни и деятельности которого также мало сведений и нет упоминаний в работах ни у одного из его современников.

Следуя той же хронологии, первая по времени группа средневековых учёных появляется в 9-11 веках: на Востоке в самом конце 9 века – Сабит ибн-Корра (836-901), а затем уже только в первой половине 11 века – ибн-Сина (960-1037) и аль-Бируни (973-1048). В Европе – это всегда упоминаемый учёный монах Теофил (10 в.), с большой натяжкой относимый к специалистам в области механики, и математик и чернокнижник Герберт Аврилакский (940-1003), ставший в последние годы жизни папой Римским Сильвестром II, а затем уже только в 12 веке появляются действительно математики и механики, такие как полулегендарный Иордан Неморарий, о жизни которого ничего неизвестно, Герардо Кремонский (1114-1187) и ряд других.

Между этими двумя группами учёных минимум 800 лет! И практически никого между ними! Вот здесь и возникает интрига. Быть может, просто эти личности оказались на оси времени не там, где они на самом деле находились, и нет этой пропасти веков между ними?

Непредвзятый анализ ситуации приводит к пониманию того, что признанные факты истории развития классической механики во многом подтверждают результаты первоначальных исследований А.Т. Фоменко об искусственном удлинении всеобщей истории за счёт Средневековья. Бурное развитие естественнонаучного знания в Античности в соответствии с общепринятой версией хронологии переходит в средневековый спад или откат, преодолеваемый только к началу эпохи Возрождения. Ныне 2-10 века характеризуются общей деградацией научного знания, утратой практических и теоретических достижений Ан-

тичности, а на исторической сцене появляются «специалисты», подобные Косме Индикоплевсту. В рамках традиционной истории и хронологии этот спад объясняется общим упадком цивилизации, обусловленным междоусобными войнами, чудовищными эпидемиями, утратой связей с античной наукой, а позднее – агрессией Арабского Халифата, губительными действиями инквизиции в отношении учёных и так далее.

Общий вывод сводится к необходимости повторного и внимательного изучения фактов истории механики и современного научного анализа, а возможно и пересмотра используемой хронологии. По-видимому, потребуется соответствующий анализ и в других областях человеческого знания: юриспруденции, менеджменте, алхимии.

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Baklarova Natasha,

Varna Free University of Varna,

Doctor, the Faculty of Architecture

Modeling in descriptive geometry

Бакларова Наташа,

ВСУ им. Черноризца Храбра,

доктор, архитектурный факультет

Моделирование в начертательной геометрии

В последние годы моделирование становится все более важным в науке, образовании, производстве, строительстве, архитектуре и дизайне. С развитием науки изменяются результаты различных научных методов. Возникшие в одной или нескольких науках, эти способы применимы в различных областях знаний.

Модель – название происходит от латинского модуля, что означает меру, модель или норму. В общем смысле «модель» означает изображение или изображения (модель) объекта или системы объектов, используемых при определенных условиях в качестве их «заменителей» или «представителей» [7, том 16, с. 399]. Термин «модель» широко используется в различных областях науки, где, в зависимости от самой науки, в этой концепции включает различное содержание. Например, «модели» означает «алгоритм», «структура», «система», «аналог», «замена», «природный объект», «квази объект» и другое. Ряд болгарский (М. Андреев [1], А. Маджаров, М. Янков [6] и Н. Стефанов [5] и др.) и зарубежных авторов (V.A. Shtoff, A.I. Uemov, K.B. Bataroev [7] B.B. Давыдов, Л.М. Фридман [8], V.S. Gerasimova, Н. Салмина и другие) использовали различные модели.

Они считают, что модель, как «система воспроизводящих в некоторых странах изучаемых объектов» [8]. Чтобы играть в роли каждой модели с заменой реального объекта, они должны соответствовать следующим требованиям:

- иметь систему, которая в некоторых отношениях подобна к другой системе, но не совпадает с ней;
- иметь интерфейс в отношениях человека с объективно существующими процессами, явлениями и объектами;
- повторять свойства и характеристики исходного объекта или, по крайней мере, наиболее характерные из них, которые непосредственно связаны с целью исследования;
- быть проще, более доступными для изучения, чем соответствующие реальные явления;
- быть источником новой информации о моделируемом объекте;
- быть видимостью, связанной с теоретическим пониманием строительства;
- не существовать сами по себе, отрезанные от человеческой умственной деятельности и многое другое.

Цель данной работы – показать, как с помощью различных моделей и моделирования процесса могут быть созданы различные проблемы в начертательной геометрии, которые бы более четко определяли точно перспективные изображения различных геометрических объектов. Существуют различные классификации по видам моделей, но, как правило, различают следующие типы моделей: субъект, изобразительные, символические, а также структурные и функциональные модели.

Говоря о типах моделей, используемых в предлагаемых задачах в начертательной геометрии, мы принимаем следующую классификацию:

- Устная модель - в качестве средства использует речь. Она может содержать дефицитную или обильную информацию с учетом специфики задачи и ее практического применения.
- Математическая модель - построена с помощью математических символов.
- Геометрический рисунок - реализован с использованием известных геометрических фигур.
- Принципиальная модель - представлена в рисунках.
- Физическая модель - например, строительство модели.
- Технические модели и так далее.

Предлагаем использовать словесные, математические, геометрические, схемы и физические модели [4].

Первоначально устанавливается геометрический объект, в данном случае куб. Куб был выбран не случайно в качестве первого геометрического объекта, поскольку впоследствии исследовали все эти геометрические объекты, которые могут быть указаны или описаны вокруг куба. Рассмотрение этих объектов является следующим этапом усложнения задачи.

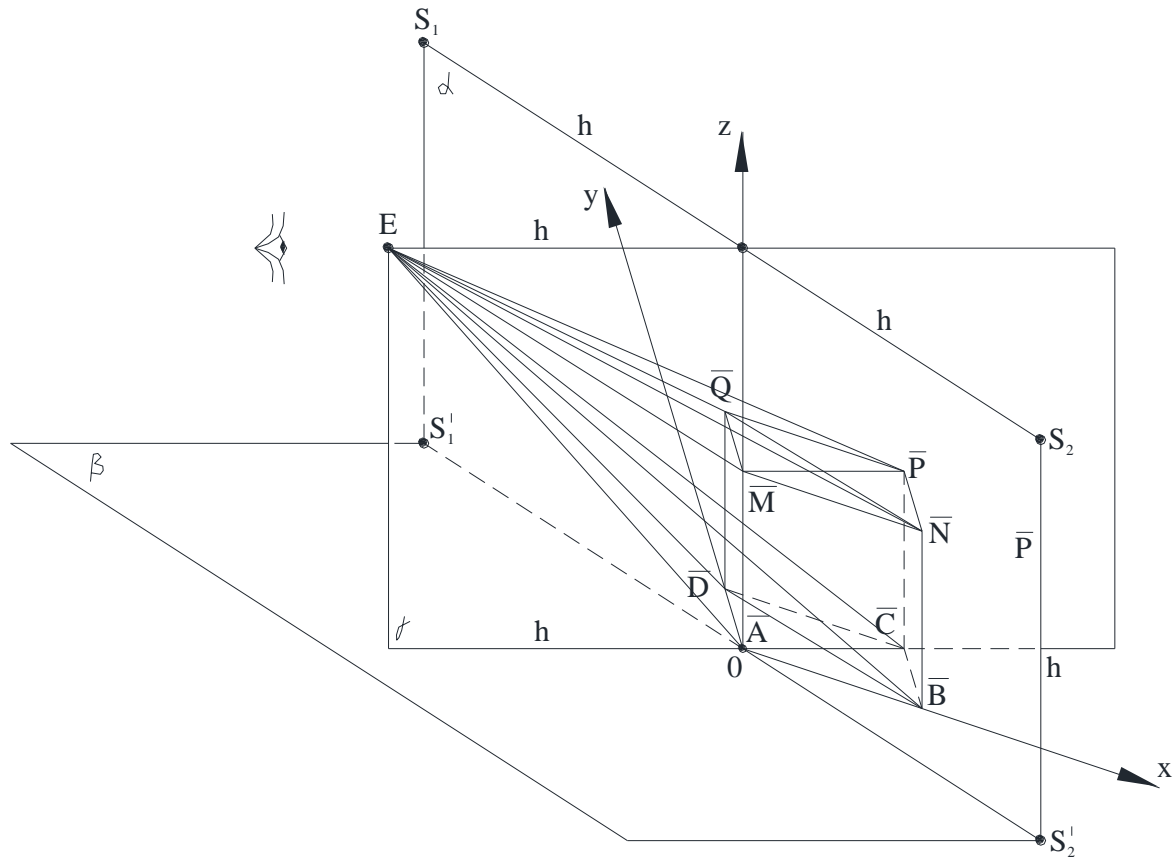
Первый этап работы включает в себя строительство геометрической модели в виде куба на основе знания начертательной геометрии.

Второй этап включает в себя строительство математических моделей, описывающих уравнение плоскости проекции и уравнения, которые лежат по краям изображения с точки зрения определения координат вершин в аналитической геометрии.

Третий этап включает в себя руководство пользователя. Описаны конкретные шаги, которым вы должны следовать. Это может быть достигнуто с помощью словесной или схематической моделей.

Описанные шаги будут решены в следующей последовательности. После изучения состояния задачи используют словесную или принципиальную модель, которая дает конкретные направления и принципы. Тогда построим геометрическую модель с точки зрения изображения и, наконец, построим математическую модель, описывающую уравнения.

Для каждой из задач используются символы: внедренная система OXYZ ориентирована так, что ось Oz совпадает с пересечением плоскостей, а α и γ координаты и оси Ox и Oz лежат в плоскости ρ (α , β и γ перпендикулярны друг с другом (Фиг. 1).



Фиг. 1

$G = N$ - расстояние от верхней части куба к перспективной плоскости. Точка G находится в плоскости, перпендикулярной к перспективе, $Hg = M$, h высота горизонта, D является расстоянием от наблюдателя к перспективной плоскости, $h = D$.

В зависимости от длины P были рассмотрены следующие случаи: N - меньше диагонали подложки, в случае диагонали квадрата, определяющего стенки куба, и P больше, чем эта диагональ.

Методика включает также другие классификации от угла, под которым куб наклонен по отношению к перспективной плоскости. Рассмотрено случай, когда этот угол составляет 45 градусов, и случай, когда куб наклонен под любым углом перспективной плоскости [2].

Таким примером есть следующая задача:

Длина ребра куба $a = 2$;

б) указать координаты вершин куба против ориентированной системы координат;

в) показать математические модели, описывающие уравнения и координаты вершин перспективного изображения стены.

Методология связана с выводом математических моделей, уравнения и координат вершин перспективного изображения, что включает в себя проверку различных размещений куба.

Следующий этап решения проблемы связан со сложностью задачи. Считаются более сложные формы, сочетание различных геометрических объектов, таких как угловые и ротационные. Идея в том, что геометрические тела выбираются таким образом, что они могут вписаться в кубе или разложиться на составные части, которые могут поместиться в кубе [2].

На основании решения подобных задач могут быть сделаны следующие выводы: данный подход, основанный на методологии, является практической реализацией в подготовке заявок на отделочные работы в строительстве, в поиске реальных размеров различных конструкций, находя реальные размеры исторических мест, археологических раскопок, и не в последнюю очередь способствует подготовке молодых специалистов в использовании этой методологии.

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Prahodski Sergey,

*Belarusian State Technological University,
Associate Professor, Ph.D., Forestry Faculty*

Trends in design and construction of the Belarusian small private gardens

A few years ago landscaping in Belarus was inaccessible to most people. Today, the landscape design – is the ability to efficiently and effectively use natural areas. Like a century ago, the landscape design brings the philosophy of his time, reflects the attitude of a man to the surrounding nature. Today it is not only the majestic parks, squares and boulevards, but cozy private gardens.

According to one opinion [1] Garden – is a territorially separate open space formed by means of landscape architecture and design. At the same time, a small garden – is a creation favorable environment for long-term human habitation in the air and under the sun, as well as for making the maximum number of vital functions in an open space [2].

Currently, the composition and structure of the private garden and its style and functional solution vary greatly depending on a number of factors, but often overly dependent on the wishes of the owners (customers). This often has a negative effect on the appearance and character of the use of the territory.

Particularly relevant in this context becomes an analysis of a number of factors and components such as the location of the object, the relief, the existing buildings, placing communications, insolation area, functional zoning, stylistic decision, the ratio of indoor and outdoor spaces, the dominant colors, assortment of plants, materials and architectural forms, the presence or absence of water objects, sports items, baby equipment, automatic watering, lighting condition and level of landscaping to the site, etc.

The study aims to determine the characteristics of the design and creation of small private gardens in the territory of the Republic of Belarus and the development of recommendations for design.

At the stage of generalization of domestic and foreign experience of organizing small private gardens and identify contemporary trends studied original works and

scientific and methodological design concept D. Symonds [3], A. Rosemary and K. Betstoun [4], A.V. Sycheva [1], A.Y. Sapelin [5], M.V. Sidorenko [2, 6], and others.

When conducting research used empirical method of full-scale survey of objects, as well as questioning followed systematization and generalization of the results. Each of the objects studied by the following parameters: location, land area, existing buildings, orientation, stylistic decision, the relief, the ratio of indoor and outdoor spaces, functional zoning, the range of plants, materials and architectural forms, the presence of lighting, irrigation, sports items, baby and water equipment, national elements, Family or the Christmas tree, as well as the status of the territory in front of the site and design errors. As a result of the survey was analyzed in detail 47 gardens of 8 landscape designers of Belarus.

1. Square. More than half (66%) sites have an area of more than 2500 sq.m. and the sites with the area from 0 to 600 and from 600 to 1000 sq.m. accounted for 6.4%. The area of the large site was 12000 sq.m., and the smallest 200 sq.m.

2. Forms of study sites. The most common are the portions having the shape of a rectangle 1: 2 (42.6%). The rarest form of land has become a triangle shape – 2.1%, and accounted for about a third of areas of irregular shape.

3. The balance of the territory. It should be noted that most of the territory allotted to the lawn (21.7%) and woody plants (21.4%). Buildings and constructions totaled 23.8%. Least of all occupied by water objects – 3.0%, as well as vegetable-garden and orchard – 6.2% and flower-garden – 6.6%. In the analysis of the studied areas, it was found that water devices found on 34% of the sites, orchard and garden – 66%. Many of the owners of gardens grow their herbs, vegetables and fruits.

In all areas there is a house and in 6.4% of cases at the site has 2 houses (one – owner, the second – guest). In 21.3% of cases there is a separate garage, usually for 2 cars. In some cases, garage provided, together with the house. A third of the studied areas for shelter from the weather automobiles have canopies. About half of the objects include the construction of a bath or have it in stock. Only 6.4% of the objects study found baby equipment and sports equipment were present at the 3 study areas (6.4%).

More than half of the studied areas – 59.6% have either a single or a decorative garden. In the analyzed stations in 17.0% of cases, provided the device greenhouses, as well as 14.9% – compost boxes.

Quite popular in the area are houses (31.9%), to a lesser extent pavilions – 4.3%. Outbuildings found on 40.4% of the facilities. At 8.5% of sites equipped with special storage space for firewood. In several projects provided specially equipped fireplace. Terraces represented 40.4% of the sites.

Enclosures for animals are provided by 14.9% of the sites. At one of the sites separately presented wine cellar. Also in the projects under study found the use of containers, flower pots, garden furniture, bridges, dry creeks, espalier, pergolas, garden sculpture, retaining walls.

4. Garden Style. The results showed that among the playing styles of gardens the most common were mixed style – 46.8%, slightly less – 38.3% takes landscape style, and only 14.9% are in regular style.

5. The relief of the investigated areas. Among the studied objects often met other areas with flat topography or with a slight slope – 72.3%, and 27.7% had differences. At 8.5% of the sites was a drop of 3 meters.

6. Functional zoning. The analysis of data revealed the following areas: entrance, relaxation area, walking area, household zone, garden and decorative vegetable garden, children's area and sports area. The most frequently encountered was the relaxation area (in all areas), entrance area – 78.7%, household zone – 63.8%, and the vegetable garden area is found in 59.6% of the sites. Least separately allocate children's and sports area – 6.4%.

An analysis of the range of plants found that on average, each site meets 3 taxonomic units of coniferous trees, 5 – deciduous trees, 8 – coniferous shrubs, 16 – deciduous shrubs, 2 – fruit trees, 3 – fruit bushes, 1 – a unit of vines and 28 – perennial flower cultures. The more studied landscaping at the small gardens were used deciduous trees and shrubs. Least of all in the range found vines, fruit trees and shrubs, and annuals are virtually absent. Also on the third portion (31.9%) sites have a Christmas tree (*Picea glauca* 'Glauca' and 'Hoopsii', *Abies concolor*). Family tree mentioned by 6.4% of the sites (*Quercus rubra*).

7. Water devices. The most popular devices for water investigated areas become reservoirs (37.5%), ponds (29.1%) and pools (25%). Only one area is arranged well, but on the other – the creek.

8. Types of irrigation in the area. In 63.8% of the sites studies provided watering. Of these, 38.3% is used for automatic watering throughout the territory, and

25.5% have a partial automatic watering. In the third section (36.2%) is not provided for automatic watering.

63.8% of the sites provided lighting. Among the lighting most common street lamps, ground, front, down light, recessed and wall-mounted fixtures.

Also analyzed the presence of national elements in the areas, but none of the 47 sites of such elements have been identified.

It should also be noted that every fifth research territory provided landscaping to the site, which makes perfection, creating a favorable picture.

Also during the analysis of the questionnaires revealed some mistakes made in the design. Among them: the placement of watering dots in the crowns of shrubs, lack of border strips along the retaining walls, a critical ratio of indoor and outdoor spaces, some landing in the grass and the lack of attention to the surrounding area.

Based on the study results by analyzing projects and small gardens, as well as the study of literature, developed recommendations necessary in the design of Belarus small gardens: identification and use of land relationships with the environment; calibration at the customer's wishes to the extent necessary, and the reality of the application; the importance and primacy of the spatial structure and the general style decision in the drafting of a small garden; use of communication interior and exterior; observance of the principles of composition, harmony and measures; keeping the integrity of the perception of the whole territory of the design; creating the possibility of rational movement in the garden; expanded use of functional areas (mobility, transformation); the possibility of dynamic development, changes and additions to the components of the garden over time; the use of plants for a limited range of species diversity; maximum preservation of existing plantings; the use of lighting, such as the possibility of extending the time of aesthetic perception of a small garden; environmental mainstreaming in the construction and operation of small gardens, etc.

Garden design is subject to special laws. Its small footprint requires the landscape designer particularly consider the functional use of the territory, rational movement, cover limits and so on. Decorative walls, pergolas, sharing a common space; patios, large window openings; picture of cover tracks have a particular importance in the garden. Great attention should be given to an inert material which, when combined with groups of herbaceous plants create a harmonious composition. Tiled crossings lawn, bubbling fountains and streams, rocky devices, group planting

flowers among the rocks, pergolas and trellises twined vines, vases – all this makes it possible to create a "green room" in the air.

Designing small gardens – is a creative process. However, the embodiment of a specific design in the "life" is not possible without the fulfillment of certain actions which established history of humanity, and reflected in the literature. Violation of the design rules leads to deterioration of the small garden creation. At best, it involves overspending and delays in terms of execution, at worst – inefficiency and disaster created by the elements of the garden.

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Baklarova Natasha,

Varna Free University of Varna,

Doctor, the Faculty of Architecture

***Cooperation and collaboration descriptive and analytic
geometry in the determination of image elements***

Бакларова Наташа,

ВСУ им. Черноризца Храбра,

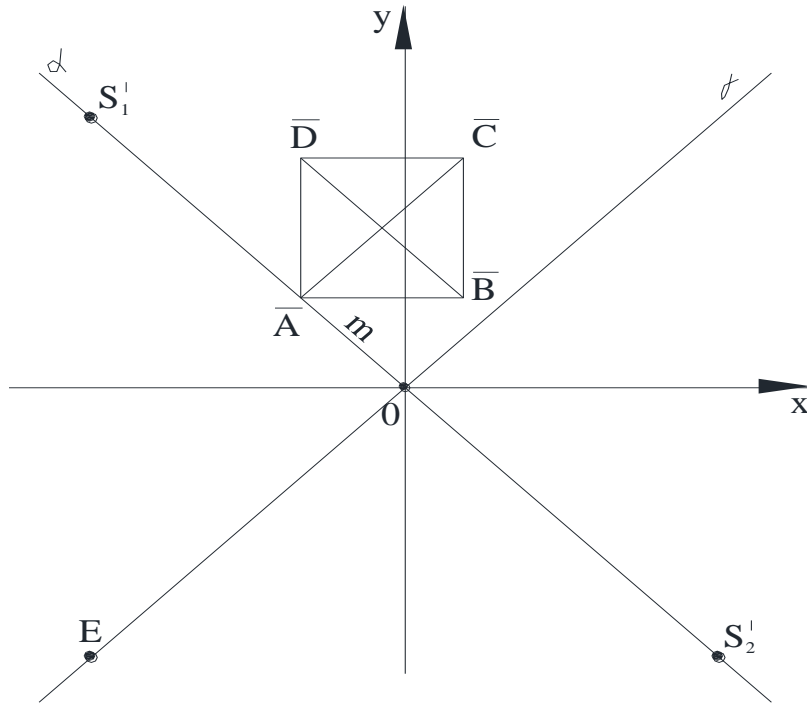
доктор, архитектурный факультет

***Сотрудничество и взаимодействие дескриптивной
и аналитической геометрии при определении
элементов изображений***

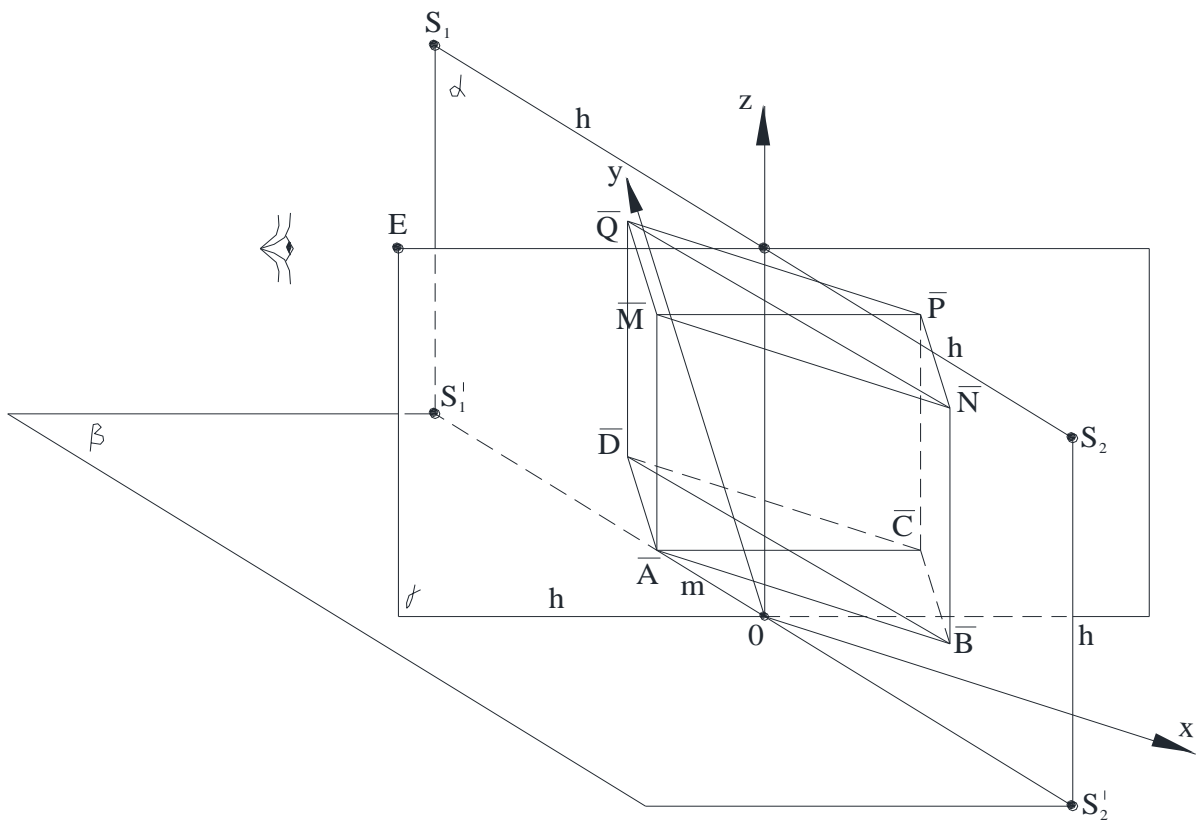
В условиях высокого уровня развития в сфере технологии, введение интегрированного подхода как и сотрудничество и взаимодействие в работе при определении элементов перспективных изображений различных объектов, начиная с самыми простыми геометрическими формами, приводит к развитию творческого начала и инноваций. Одна из возможных перспектив создания такого сотрудничества и взаимодействия является объектом настоящей разработки. Доклад знакомит нас с сутью построения перспективного изображения куба и определении его элементов с помощью познаний аналитической геометрии.

Предлагаемая разработка является частью более глубокого исследования, в котором при различных расположениях куба, с помощью методов дескриптивной геометрии, построено его перспективное изображение и с помощью знания аналитической геометрии выведены математические модели, описывающие отдельные элементы перспективного изображения.

К вниманию читателей предлагается один из случаев расположения куба, представленного на Фиг. 1 и Фиг. 2.



Фиг. 1



Фиг. 2

Координаты вершин куба при этом расположении следующие:

$$\begin{aligned} \bar{A} & \left(-\frac{m}{\sqrt{2}}, \frac{m}{\sqrt{2}}, 0\right); \bar{B} \left(a - \frac{m}{\sqrt{2}}, \frac{m}{\sqrt{2}}, 0\right); \bar{C} \left(a - \frac{m}{\sqrt{2}}, a + \frac{m}{\sqrt{2}}, 0\right); \\ \bar{D} & \left(-\frac{m}{\sqrt{2}}, a + \frac{m}{\sqrt{2}}, 0\right); \bar{M} \left(-\frac{m}{\sqrt{2}}, \frac{m}{\sqrt{2}}, a\right); \bar{N} \left(a - \frac{m}{\sqrt{2}}, \frac{m}{\sqrt{2}}, a\right); \\ \bar{P} & \left(a - \frac{m}{\sqrt{2}}, a + \frac{m}{\sqrt{2}}, a\right); \bar{Q} \left(-\frac{m}{\sqrt{2}}, a + \frac{m}{\sqrt{2}}, a\right). \end{aligned}$$

Координаты точки схода следующие:

$$S_1 \left(-\frac{h}{\sqrt{2}}; \frac{h}{\sqrt{2}}; h\right) \text{ и } S_2 \left(\frac{h}{\sqrt{2}}; -\frac{h}{\sqrt{2}}; h\right).$$

Координаты точки наблюдателя, точки E, следующие: $E\left(-\frac{h}{\sqrt{2}}; -\frac{h}{\sqrt{2}}; h\right)$.

Геометрическая модель, представляющая перспективное изображение куба /Фиг. 2/, получается после пересечения перспективных лучей, связывающих каждой вершине куба и точки наблюдателя с равниной α .

$$\begin{aligned} E\bar{B} \cap \alpha & = \{B\}; E\bar{C} \cap \alpha = \{C\}; E\bar{D} \cap \alpha = \{D\}; E\bar{M} \cap \alpha = \{M\}; E\bar{P} \cap \alpha = \{P\}; \\ E\bar{Q} \cap \alpha & = \{Q\}. \end{aligned}$$

Перспективным изображением куба $\bar{A}\bar{B}\bar{C}\bar{D}\bar{M}\bar{N}\bar{P}\bar{Q}$ является $ABCDMNPQ$, которое лежит в равнине α .

Уравнение равнины α имеет вид: $\alpha: x+y=0$.

Перспективное изображение вершины \bar{A} получается после пересечения перспективного луча, лежащего сверху прямой $(\bar{A}E)$ с равниной α . По координатам точек $\bar{A}\left(-\frac{m}{\sqrt{2}}, \frac{m}{\sqrt{2}}, 0\right)$ и $E\left(-\frac{h}{\sqrt{2}}; -\frac{h}{\sqrt{2}}; h\right)$ определяется математическая модель, описывающая уравнение прямой:

$$(\bar{A}E): \frac{x\sqrt{2} + m}{-h + m} = \frac{y\sqrt{2} - m}{-h - m} = \frac{z}{h}.$$

Координаты точки A определяются решением системы, составленной из уравнений равнины $\alpha: x+y=0$ и уравнения прямой:

$$(\bar{A}E): \frac{x\sqrt{2} + m}{-h + m} = \frac{y\sqrt{2} - m}{-h - m} = \frac{z}{h}. \quad \{A\}: \begin{cases} \alpha: x + y = 0 \\ (\bar{A}E): \frac{x\sqrt{2} + m}{-h + m} = \frac{y\sqrt{2} - m}{-h - m} = \frac{z}{h} \end{cases}$$

Откуда точка A получается с координатами $A\left(-\frac{m}{\sqrt{2}}; \frac{m}{\sqrt{2}}; 0\right)$.

Перспективное изображение вершины \bar{B} получается после пересечения перспективного луча, лежащего сверху прямой (\bar{BE}) с равниной α . По координатам точки $\bar{B}\left(a - \frac{m}{\sqrt{2}}, \frac{m}{\sqrt{2}}, 0\right)$ и $E\left(-\frac{h}{\sqrt{2}}; -\frac{h}{\sqrt{2}}; h\right)$ определяется математическая модель, описывающая уравнение прямой:

$$(\bar{BE}): \frac{x\sqrt{2} - a\sqrt{2} + m}{-h - a\sqrt{2} + m} = \frac{y\sqrt{2} - m}{-h - m} = \frac{z}{h}.$$

Координаты точки B определяются решением системы, составленной из уравнений равнины $\alpha: x+y=0$ и уравнения прямой:

$$(\bar{BE}): \frac{x\sqrt{2} - a\sqrt{2} + m}{-h - a\sqrt{2} + m} = \frac{y\sqrt{2} - m}{-h - m} = \frac{z}{h} \quad \{B\}: \begin{cases} \alpha: x + y = 0 \\ (\bar{BE}): \frac{x\sqrt{2} - a\sqrt{2} + m}{-h - a\sqrt{2} + m} = \frac{y\sqrt{2} - m}{-h - m} = \frac{z}{h} \end{cases}$$

В результате решения определены координаты точки:

$$B\left(\frac{-h(m\sqrt{2} - a)}{2h + a\sqrt{2}}; \frac{h(m\sqrt{2} - a)}{2h + a\sqrt{2}}; \frac{ah\sqrt{2}}{2h + a\sqrt{2}}\right).$$

Перспективное изображение вершины \bar{C} получается после пересечения перспективного луча, лежащего сверху прямой (\bar{CE}) с равниной α . По координатам точек $\bar{C}\left(a - \frac{m}{\sqrt{2}}, a + \frac{m}{\sqrt{2}}, 0\right)$ и $E\left(-\frac{h}{\sqrt{2}}; -\frac{h}{\sqrt{2}}; h\right)$ определяется математическая модель, описывающая уравнение прямой:

$$(\bar{CE}): \frac{x\sqrt{2} - a\sqrt{2} + m}{-h - a\sqrt{2} + m} = \frac{y\sqrt{2} - a\sqrt{2} - m}{-h - a\sqrt{2} - m} = \frac{z}{h}.$$

Координаты точки C определяются решением системы, составленной из уравнений равнины $\alpha: x+y=0$ и уравнения прямой:

$$(\bar{CE}): \frac{x\sqrt{2} - a\sqrt{2} + m}{-h - a\sqrt{2} + m} = \frac{y\sqrt{2} - a\sqrt{2} - m}{-h - a\sqrt{2} - m} = \frac{z}{h}.$$

$$\{C\} \begin{cases} \alpha: x + y = 0 \\ (\bar{CE}): \frac{x\sqrt{2} - a\sqrt{2} + m}{-h - a\sqrt{2} + m} = \frac{y\sqrt{2} - a\sqrt{2} - m}{-h - a\sqrt{2} - m} = \frac{z}{h} \end{cases}$$

Так, координаты точки С следующие:

$$C \left(\frac{-mh}{\sqrt{2}(h+a\sqrt{2})}; \frac{mh}{\sqrt{2}(h+a\sqrt{2})}; \frac{ah\sqrt{2}}{h+a\sqrt{2}} \right).$$

Перспективное изображение вершины \bar{D} получается после пересечения перспективного луча, лежащего сверху прямой (\bar{DE}) с равниной α . По координатам точек $\bar{D}(-\frac{m}{\sqrt{2}}, a + \frac{m}{\sqrt{2}}, 0)$ и $E(-\frac{h}{\sqrt{2}}; -\frac{h}{\sqrt{2}}; h)$ определяется математическая модель, описывающая уравнение прямой:

$$(\bar{DE}): \frac{x\sqrt{2}+m}{-h+m} = \frac{y\sqrt{2}-a\sqrt{2}-m}{-h-a\sqrt{2}-m} = \frac{z}{h}.$$

Координаты точки D определяются решением системы, составленной из уравнений равнины $\alpha: x+y=0$ и уравнения прямой:

$$(\bar{DE}): \frac{x\sqrt{2}+m}{-h+m} = \frac{y\sqrt{2}-a\sqrt{2}-m}{-h-a\sqrt{2}-m} = \frac{z}{h}. \{D\}: \begin{cases} \alpha: x+y=0 \\ (\bar{DE}): \frac{m+x\sqrt{2}}{-h+m} = \frac{-m-a\sqrt{2}+y\sqrt{2}}{-h-a\sqrt{2}-m} = \frac{z}{h} \end{cases}$$

В результате решения определены координаты точки:

$$D \left(\frac{-h(m\sqrt{2}+a)}{2h+a\sqrt{2}}; \frac{h(m\sqrt{2}+a)}{2h+a\sqrt{2}}; \frac{ah\sqrt{2}}{2h+a\sqrt{2}} \right).$$

Перспективное изображение вершины M получается после пересечения перспективного луча, лежащего сверху прямой $(E\bar{M})$ с равниной α . По координатам точек $\bar{M}(-\frac{m}{\sqrt{2}}, \frac{m}{\sqrt{2}}, a)$ и $E(-\frac{h}{\sqrt{2}}; -\frac{h}{\sqrt{2}}; h)$ определяется математическая модель, описывающая уравнение прямой:

$$(E\bar{M}): \frac{x\sqrt{2}+m}{-h+m} = \frac{y\sqrt{2}-m}{-h-m} = \frac{z-a}{h-a}.$$

Координаты точки M определяются решением системы, составленной из уравнений равнины $\alpha: x+y=0$ и уравнения прямой:

$$(E\bar{M}): \frac{x\sqrt{2}+m}{-h+m} = \frac{y\sqrt{2}-m}{-h-m} = \frac{z-a}{h-a}. \{M\}: \begin{cases} \alpha: x+y=0 \\ (E\bar{M}): \frac{x\sqrt{2}+m}{-h+m} = \frac{y\sqrt{2}-m}{-h-m} = \frac{z-a}{h-a} \end{cases}$$

Так, координаты точки M следующие: $M(-\frac{m}{\sqrt{2}}, \frac{m}{\sqrt{2}}, a)$.

Перспективное изображение вершины N получается после пересечения перспективного луча, лежащего сверху прямой ($E\bar{N}$) с равниной α . По координатам точек $\bar{N}(a - \frac{m}{\sqrt{2}}, \frac{m}{\sqrt{2}}, a)$ и $E(-\frac{h}{\sqrt{2}}; -\frac{h}{\sqrt{2}}; h)$ определяется математическая модель, описывающая уравнение прямой:

$$(E\bar{N}): \frac{x\sqrt{2} - a\sqrt{2} + m}{-h - a\sqrt{2} + m} = \frac{y\sqrt{2} - m}{-h - m} = \frac{z - a}{h - a}.$$

Координаты точки N определяются решением системы, составленной из уравнений равнины $\alpha: x+y=0$ и уравнения прямой:

$$\{N\}: \begin{cases} \alpha: x + y = 0 \\ (E\bar{N}): \frac{x\sqrt{2} - a\sqrt{2} + m}{-h - a\sqrt{2} + m} = \frac{y\sqrt{2} - m}{-h - m} = \frac{z - a}{h - a} \end{cases}.$$

Так, координаты точки N следующие:

$$N\left(\frac{-h(m\sqrt{2} - a)}{2h + a\sqrt{2}}; \frac{h(m\sqrt{2} - a)}{2h + a\sqrt{2}}; a + \frac{ah(2 + \sqrt{2})}{2h + a\sqrt{2}}\right).$$

Перспективное изображение вершины P получается после пересечения перспективного луча, лежащего сверху прямой ($E\bar{P}$) с равниной α . По координатам точек $\bar{P}(a - \frac{m}{\sqrt{2}}, a + \frac{m}{\sqrt{2}}, a)$ и $E(-\frac{h}{\sqrt{2}}; -\frac{h}{\sqrt{2}}; h)$ определяется математическая модель, описывающая уравнение прямой:

$$(E\bar{P}): \frac{x\sqrt{2} - a\sqrt{2} + m}{-h - a\sqrt{2} + m} = \frac{y\sqrt{2} - a\sqrt{2} - m}{-h - a\sqrt{2} - m} = \frac{z - a}{h - a}.$$

Координаты точки P определяются решением системы, составленной из уравнений равнины $\alpha: x+y=0$ и уравнения прямой:

$$\{P\}: \begin{cases} \alpha: x + y = 0 \\ (E\bar{P}): \frac{x\sqrt{2} - a\sqrt{2} + m}{-h - a\sqrt{2} + m} = \frac{y\sqrt{2} - a\sqrt{2} - m}{-h - a\sqrt{2} - m} = \frac{z - a}{h - a} \end{cases}.$$

Так, координаты точки P следующие: $P\left(\frac{-mh}{\sqrt{2}(h + a\sqrt{2})}; \frac{mh}{\sqrt{2}(h + a\sqrt{2})}; \frac{ah(1 + \sqrt{2})}{h + a\sqrt{2}}\right).$

Перспективное изображение вершины Q получается после пересечения перспективного луча, лежащего сверху прямой ($E\bar{N}$) с равнинной α . По координатам точек $\bar{Q}(-\frac{m}{\sqrt{2}}, a + \frac{m}{\sqrt{2}}, a)$ и $E(-\frac{h}{\sqrt{2}}; -\frac{h}{\sqrt{2}}; h)$ определяется математическая модель, описывающая уравнение прямой:

$$(\bar{EQ}): \frac{x\sqrt{2} + m}{-h + m} = \frac{y\sqrt{2} - a\sqrt{2} - m}{-h - a\sqrt{2} - m} = \frac{z - a}{h - a}.$$

Координаты точки N определяются решением системы, составленной из уравнений равнины $\alpha: x+y=0$ и уравнения прямой:

$$(\bar{EQ}): \frac{x\sqrt{2} + m}{-h + m} = \frac{y\sqrt{2} - a\sqrt{2} - m}{-h - a\sqrt{2} - m} = \frac{z - a}{h - a}.$$

$$\{Q\}: \begin{cases} \alpha: x + y = 0 \\ (\bar{EQ}): \frac{m + x\sqrt{2}}{-h + m} = \frac{-m - a\sqrt{2} + y\sqrt{2}}{-h - a\sqrt{2} - m} = \frac{z - a}{h - a} \end{cases}$$

Так, координаты точки Q следующие:

$$\left(\frac{-h(m\sqrt{2} + a)}{2h + a\sqrt{2}}; \frac{h(m\sqrt{2} + a)}{2h + a\sqrt{2}}; \frac{ah(2 + \sqrt{2})}{2h + a\sqrt{2}} \right).$$

Из выведенных математических моделей для координат перспективного изображения могут быть сделаны следующие заключения:

1. Выведенные математические модели для абсцисс и ординат точек A и M, B и N, C и P, D и Q равны. Они отличаются единственно по третьей координаты z, потому что прямые (AM), (BN), (CP) и (DQ) параллельные.

2. Выведенные математические модели для аппликаты точек B, D и N, Q тоже равны и в них участвуют единственно параметры a и h, которые отвечают длиной кромки куба и длиной дистанции.

3. Выведены математические модели, которые могут помогать молодым творцам при их работах и приводить к проектированию радикально новых форм. Специальное внимание обращено к результатам, полученным при применении предложенного метода для создания более сложных моделей, как комбинация различных геометрических тел.

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Shokirov Farkhod Shamsidinovich,
S.U.Umarov PhTI of Academy of Sciences
of the Republic of Tajikistan, Docent,
Candidate of Physico-Mathematical Sciences

Numerical simulation of oscillating topological solitons of the (2+1)-dimensional nonlinear sigma model

Abstract: By methods of numerical simulations the dynamic of the Belavin-Polyakov type topological vortices in (2+1)-dimensional O(3) vector nonlinear sigma model is studied. The change of the rotation frequency of isotopic spin ($\omega \neq 1$) in the fiber space leads to the oscillatory dynamics of the energy density of topological vortices is showed.

Keywords: numerical simulation – two-dimensional topological vortex – oscillation topological soliton – nonlinear sigma-model – fiber space – isospin.

Introduction

In this paper the new numerical models of the Belavin-Polyakov type topological vortices (topological solitons, TS) [1-4] in the (2+1)-dimensional anisotropic O(3) vector nonlinear sigma model (VNSM), which have the internal degree of the freedom is obtained. Recall that the Euler-Lagrange equations of the investigated VNSM [2-4] are as follows:

$$\begin{aligned} \partial_\mu \partial^\mu s_i + (\partial_\mu s_a \partial^\mu s_a) s_i - s_3 (\delta_{i3} - s_i s_3) &= 0, \\ i = 1, 2, 3, \quad s_a s_a &= 1, \end{aligned} \quad (1)$$

where $s_1 = \sin \theta \cos \varphi$, $s_2 = \sin \theta \sin \varphi$, $s_3 = \cos \theta$, the $\theta(x, y, t)$ and $\varphi(x, y, t)$ are the Euler angles. In this paper, a numerical study of topological solitons (Bellavin-Polyakov solitons-vortices, [1]) with nonzero Hopf index Q_t (topological charge) of the form

$$\begin{aligned} \theta &= 2 \arctg(r/R)^{Q_t}, \quad \varphi = Q_t \chi - \omega \tau, \\ r^2 &= x^2 + y^2, \quad \cos \chi = x/r, \quad \sin \chi = y/r \end{aligned} \quad (2)$$

is conducted at $\omega \neq 1$.

The properties of topological solitons-vortices (2) at $Q_t \in \{1,2, \dots,6\}$, $\omega = 1$ of the model (1) were examined in our previous works (see., e.g., [2-4]). In these studies, in particular, were studied models of collisions of TS of the form (2) of the (2+1)-dimensional O(3) VNSM and was found a number of properties, including: the decay of the TS on the localized perturbations (preserving the total value of Q_t); gradual annihilation of the TS onto units Q_t (by the radiation of energy in the form of linear perturbation waves, propagating at the speed of c); long-range TS; mutual attraction and repulsion of the TS, etc. Also the interaction model of the TS of the form (2) with a 180-degree Neel-type domain wall (see, e.g., [5,6]) was investigated. In this case, it was shown that collision of the TS with the domain boundary completely disintegrate by the radiation of energy in the form $2Q_t$ localized perturbations, each of which has $|Q_t| = 1/2$ and moves along the domain wall with a speed $v \rightarrow c$ ($c = 1$ – the speed of light) [5,6]. Thus, the evolutionary problem for the dynamic equations (1) using a vortex type of (2) (as well as the Neel-type domain wall) as the initial ($t = 0.0$) data was solved [2-6]. The energy integral (En) obtained in the course of the study models of interacting TC is conserved with high accuracy:

$$\frac{\Delta En}{En} \approx 10^{-6} - 10^{-3}.$$

Stationary oscillating topological soliton

In this part of the paper presents the results of numerical investigation of the TS of type (2) of model (1) at $\omega = 1/2$ and $\omega = 2$.

Case $\omega = 1/2$. Fig.1 shows the evolution of (energy density DH) TS of the form (2) in (2+1)-dimensional O(3) VNSM at $\omega = 1/2$; simulation time: $t \in [0.0, 120.0]$. The energy density (DH) of this type TS are concentrated in a radially-symmetric annular structure [2-4] (see, contour view of DH). Throughout the simulation time ($[0.0, 120.0]$) occurs 12 uniform DH oscillation periods of TS. The first period is shown in Fig.1a - Fig.1c. Fig.1d shows the final state of the evolution of the vortex (2) at $t = 120$. The energy integral of the evolving TS of type (2) of model (1) after the formation of an oscillatory soliton ($t > 40.0$) is maintained with high accuracy: $\frac{\Delta En}{En} \approx 10^{-6}$ (Fig. 1e).

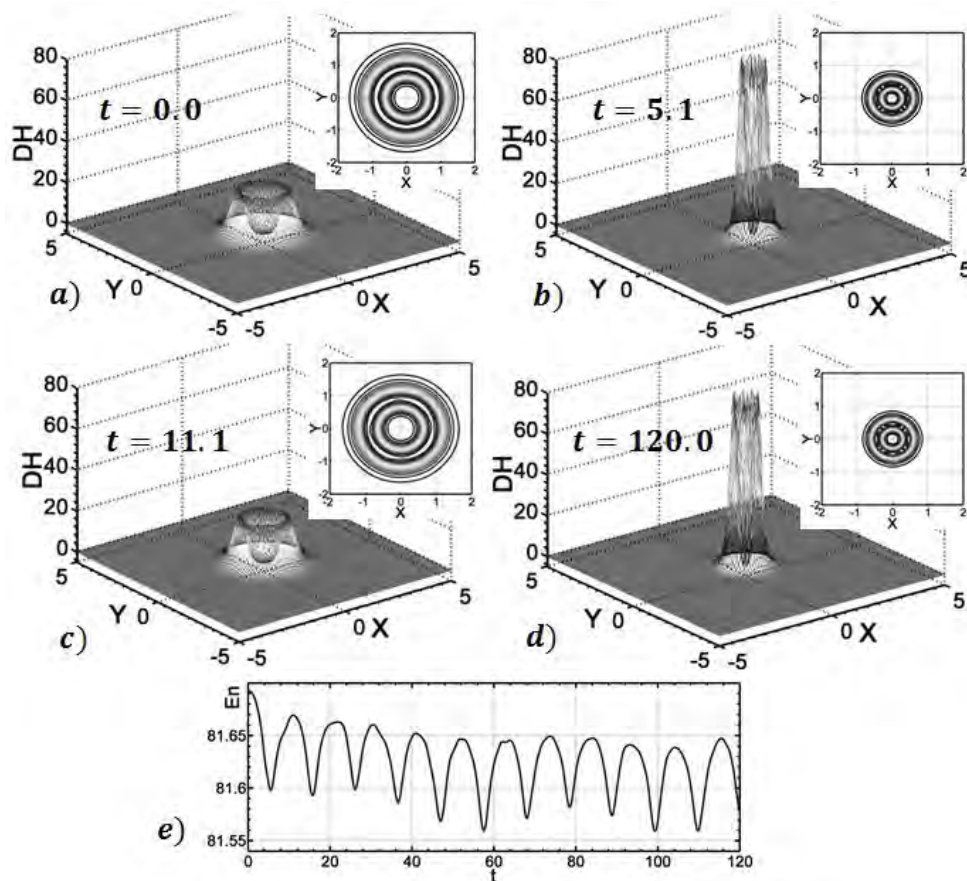


Fig. 1. Numerical model of evolution (DH and its contour view) of stationary ($v = 0.0$) TS (2) of model (1) with an Hopf index $Q_t = 3$ at $\omega = 0.5$: a) $t = 0.0$; b) $t = 5.1$; c) $t = 11.1$; d) $t = 120.0$; e) Integral of energy at $t \in [0.0, 120.0]$.

Fig.2 shows the isospin projection of the TS (2) of model (1) of the isotopic space on the complex plane. These projections have a characteristic appearance [2-4], but in this ($\omega = 1/2$) case, they differ from those projections TS, whose we studied in the case $\omega = 1$ on the periodic change of the radius of the ring-shaped structure, in which concentrated the energy of the vortex (2).

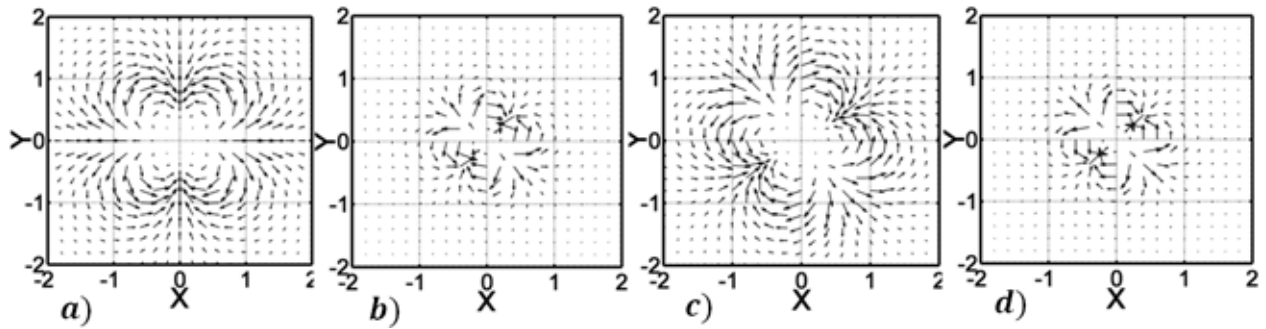


Fig. 2. Isospin projection of the stationary ($v = 0.0$) TS (2) of model (1)

with an Hopf index $Q_t = 3$ on to the complex plane at $\omega = 0.5$:

a) $t = 0.0$; b) $t = 5.1$; c) $t = 11.1$; d) $t = 120.0$.

b) Simulation time: $t \in [0.0, 120.0]$.

Case $\omega = 2$. Fig.3 shows the evolution of (energy density DH) TS (2) in (2+1)-dimensional $O(3)$ VNSM at $\omega = 2$; simulation time $t \in [0.0, 120.0]$. The energy density (DH) of this type TS in this case also are concentrated in a radially-symmetric annular structure [2-4] (see, contour view of DH). Throughout the simulation time ($[0.0, 120.0]$) occurs 10 uniform DH oscillation periods of TS. But in this ($\omega = 2$) case, the nature of the oscillations is different from the previous experiment with $\omega = 1/2$. In the case of $\omega = 1/2$ at $t = 0.0$ energy density (DH) has a minimum value (Fig. 1a), and this condition a replaced periodically (at $t = 11.1$ (Fig. 1c), etc.) with the maximum values (see, for example, $t = 5.1$ (Fig. 1b) the radius of annular structure of DH is reduced). But in case $\omega = 2$ energy density (DH) of TS at $t = 0.0$ (also at $t = 12.3$, etc.) has a maximum value (Fig. 3ac). Between these states the energy density (DH) of TS has a minimum value (see, e.g., $t = 5.1$ (Fig. 3b) radius of annular structure of DH is increases). On Fig.3d shows the final state of the evolution of the vortex at $t = 120$. The energy integral E_n of the evolving TS of type (2) of model (1) after the formation of an oscillatory soliton ($t > 40.0$) is maintained with high accuracy $\frac{\Delta E_n}{E_n} \approx 10^{-3}$ (Fig. 3e). Note that on the edges of the modeling area the absorbing boundary conditions is set on, and in this case, the increased of the radius of the ring-shaped structure of the DH has affected to a relatively large energy dissipation of TS.

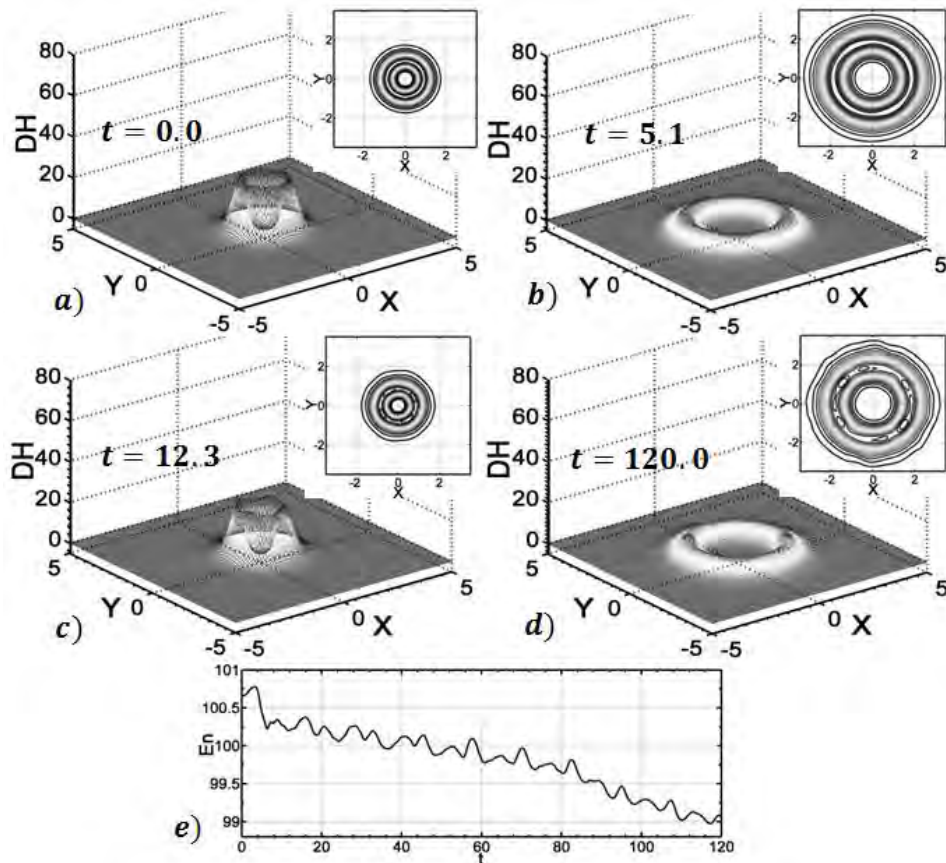


Fig. 3. Numerical model of evolution (DH and its contour view) of stationary ($v = 0.0$) TS (2) of model (1) with an Hopf index $Q_t = 3$ at $\omega = 2.0$: a) $t = 0.0$; b) $t = 5.1$; c) $t = 12.3$; d) $t = 120.0$; e) Integral of energy at $t \in [0.0, 120.0]$.

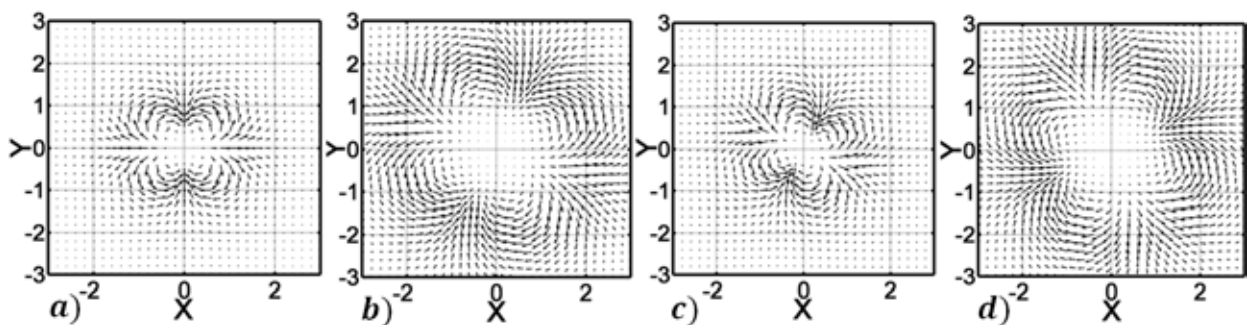


Fig. 4. Isospin projection of the stationary ($v = 0.0$) TS (2) of model (1) with an Hopf index $Q_t = 3$ on to the complex plane at $\omega = 2.0$: a) $t = 0.0$; b) $t = 5.1$; c) $t = 12.3$; d) $t = 120.0$. Simulation time: $t \in [0.0, 120.0]$.

Fig. 4 shows the isospin projection of the TS (2) of model (1) of the isotopic space on the complex plane. These projections have a characteristic appearance [2-4], but and in this ($\omega = 2$) case, they differ from those projections TS, whose we

studied in the case $\omega = 1$ on the periodic change of the radius of the ring-shaped structure, in which concentrated the energy of the vortex (2).

Thus, our studies have shown that in (2+1)-dimensional O(3) VNSM at the change the frequency of rotation of ($\omega \neq 1$) isotopic spin of topological solitons of the form (2) leads to a stable oscillatory dynamics of their energy density (DH).

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**Sumayah F. Rahman, Stephen N. Rudnick, Sonya P. Milonova,
James J. McDevitt and Edward A. Nardell,**
*Department of Environmental Health,
Harvard School of Public Health, Boston, MA, USA,
Department of Medicine, Division of Global Health Equity,
Brigham and Women's Hospital,
Boston, MA, USA,
Department of Global Health and Social Medicine
Harvard Medical School, Boston, MA, USA*

Influence of Bioaerosol Source Location and Ceiling Fan Direction on Eggcrate Upper-room Ultraviolet Germicidal Irradiation

1. INTRODUCTION

Upper-room ultraviolet germicidal irradiation (UVGI), an engineering control method that uses 254-nm wavelength ultraviolet light to inactivate microorganisms, reduces the airborne transmission of infectious diseases such as tuberculosis [1]. UV radiation must be confined to the upper room because it is irritating to the eyes and skin of room occupants [2]. To this end, upper-room UV fixtures have tightly spaced louvers that horizontally collimate the UV beam [2] in order to minimize UV radiation in the lower room. Unfortunately, these louvers greatly reduce the UV emission rate from the fixture [3].

Recently, Linnes et al. [4] tested an alternative concept using two unlouvered UV fixtures having a 25-W "bare" lamp, a 2.4-m high UV screen composed of open-cell eggcrate panels supported in a frame designed for a conventional suspended ceiling, and an 1.3-m upward-blowing ceiling fan hung from the center of the ceiling above the eggcrate panels. This eggcrate UVGI system maximizes the UV emission into the upper room while preventing harmful UV levels in the occupied lower room. They were able to inactivate 82% of airborne *Bacillus atrophaeus* spores in a 42-m³ test room, a marked improvement over the 37% inactivation they obtained with two state-of-art, con-

ventional, commercially available, louvered UV fixtures (Hygeaire model LIND 24-EVO UV, Atlantic Ultraviolet Corp., Hauppauge, NY). Each of these fixtures contained a 25-W lamp and ballast identical to what had been used in the eggcrate UVGI system. In these tests, bacterial spores were released in the center of the room directly beneath the upward-blowing ceiling fan, whereas in real-world settings, infectious particles would usually be emitted elsewhere in the room. In this configuration, it is likely that the majority of airborne bacterial spores were immediately drawn into the irradiation zone by the fan prior to being mixed with the air in the room. If this was true, the inactivation due to UVGI may have been significantly higher than it might be for other source locations or for a downward blowing fan. In the present study, we tested this hypothesis.

2. METHODOLOGY

The apparatus and testing methodology used in the present study were identical to that of Linnes et al. [4] with the following three exceptions:

1. In the Linnes et al. [4] study, the 1.3-m, five-bladed, ceiling fan (model 28415, Hunter Fan Company, Memphis, TN) was always blowing upward at its highest speed (176 rpm), whereas in the present study the same ceiling fan was blowing at its highest speed in the same direction or downward.

2. In the Linnes et al. [4] study, the bacterial spores were released at a height of 1.5 m in the center of the room, whereas in the present study, they were released either at the same location or in the corner, 280 mm from the longer wall and 580 mm from the shorter wall (square G1 in Fig. 1), and at a height of 1.2 m.

3. In the Linnes et al. [4] study, the 0.61-m by 0.61-m eggcrate panels had 7.75-mm long vertical flow channels with a 14.6-mm by 14.6-mm cross section (Thincell TC Economy eggcrate panels, SLP Lighting, Fenton, MO). Two UV fixtures mounted on 0.61-m by 0.61-m aluminum plates were placed at locations B2 and F4 in Fig. 1 in place of eggcrate panels.

In the present study, two different types of eggcrate panels were used: a) either the same eggcrate panels used in the Linnes et al. [4] study or b) 0.61-m by 0.61-m eggcrate panels having 15.2-mm long flow channels with a 7.7-mm by 7.7-mm cross section and oriented at a 45° angle from the vertical direction (Eggcrate Core, American Louver Skokie, Illinois). When eggcrate panels with

45° angled flow channels were used, the two UV fixtures mounted on 0.61-m by 0.61-m aluminum plates were placed at locations D2 and D4 in Fig. 1 in place of eggcrate panels, rather than their previous locations of B2 and F4.

In both studies, a suspension of *Bacillus atrophaeus* spores were aerosolized in a six-jet Collison nebulizer. After steady-state conditions had been reached, samples from the room's exhaust airflow were collected on a single-stage viable Andersen impactor with the UV fixtures turned either on or off, followed by incubation and counting of colonies.

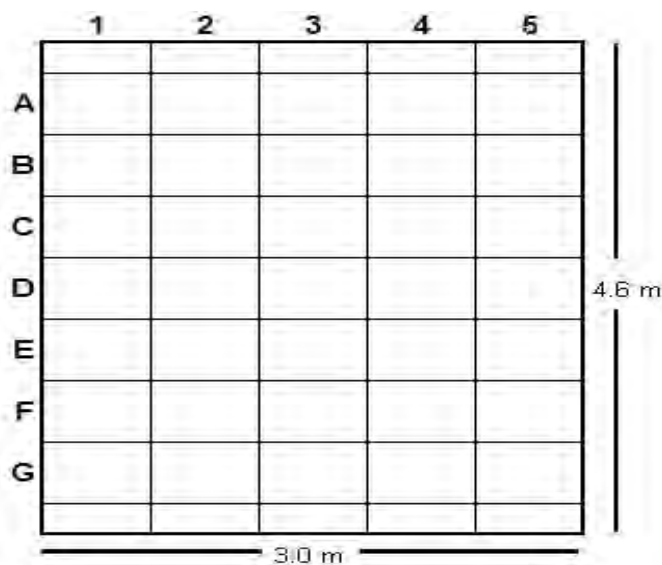


Fig. 1. Top view of schematic diagram showing the locations of 0.61-m by 0.61-m eggcrate panels in a test room with a 3.0-m high ceiling

3. RESULTS AND DISCUSSION

In the present study, as shown in Fig. 2A, 84% of *Bacillus atrophaeus* spores were inactivated using eggcrate UVGI when the source was directly beneath an upward blowing ceiling fan, in good agreement with the 82% inactivation measured by Linnes et al. [4] whereas 72% were inactivated when the fan settings were left unchanged, but the source was moved to the corner of the room. The greater inactivation when the source was in the room's center compared with the corner is statistically significant at 95% confidence ($P=0.01$). When the ceiling fan was blowing downward and the source was either in the center or corner of the room, 72% and 73%

inactivation were measured, respectively. The difference is not statistically significant at 95% confidence ($P=0.67$). These results suggest that there is an advantage having the bioaerosol source directly below an upward blowing ceiling.

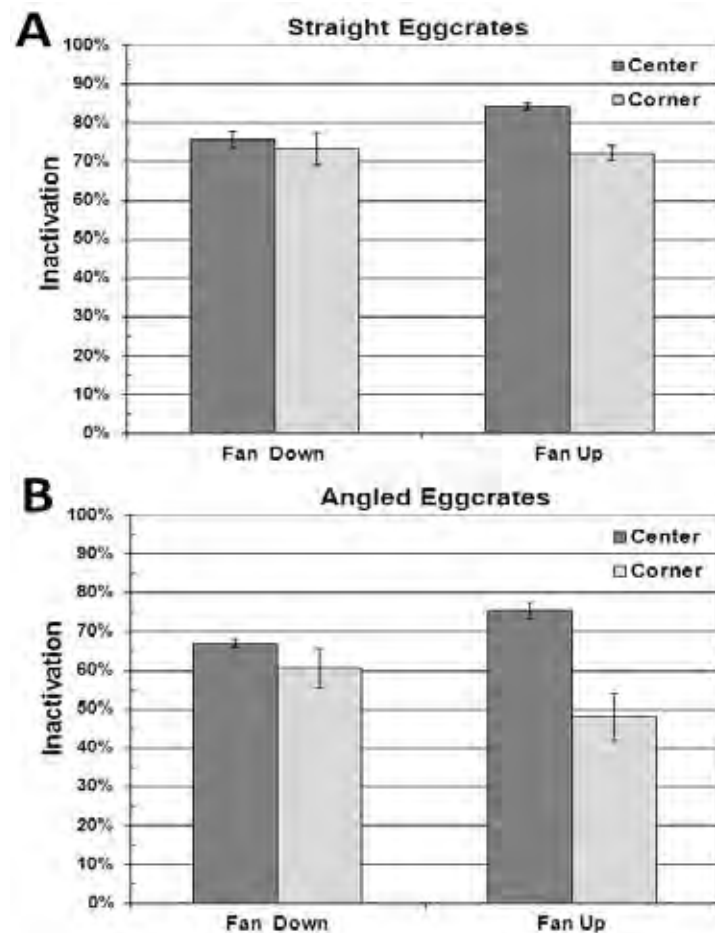


Fig. 2. Bioaerosol tests using eggcrate panels having vertical flow channels, i.e. “straight eggcrates” (A) and eggcrate panels having 45° angled flow channels, i.e. “angled eggcrates” (B).

Error bars indicate standard error of the mean for independent tests

To confirm these findings, these tests were repeated with eggcrate panels having 45° angled flow channels. Because the angled flow channels have a smaller cross-sectional area and a longer length than the panels with vertical flow channels, airflow resistance was greater, making it more difficult for the air to flow between the upper and lower room. This additional airflow resistance resulted in less inactivation, as apparent in a comparison of Fig. 2A and 2B. Nevertheless, as shown in Fig. 2B, the same pattern remained. When the fan

was hung from the center of the ceiling and blowing upward, 75% of bacterial spores were inactivated with the source in the center of the room compared to 48% with the source in the corner of the room, a difference that is statistically significant at 95% confidence ($P=0.02$). When the ceiling fan was blowing downward, there was 67% inactivation with the source in the center of the room directly below the fan compared to 61% inactivation with the source in the corner of the room. This difference was not statistically significant at 95% confidence ($P=0.32$). These results again support the hypothesis that having the bioaerosol source directly beneath an upward blowing ceiling fan results in greater inactivation than any of the other scenarios evaluated.

4. CONCLUSION

The likely explanation for the UVGI efficacy being highest when the source was directly beneath an upward blowing ceiling fan is that the fan pulls the airborne bacterial spores immediately into the UV beam prior to being mixed with the air in the room. This is somewhat analogous to local exhaust ventilation in which the contaminant is removed prior to being mixed with the air in the room. When the source is in the corner of the room and the fan is blowing upward or downward, the bacterial spores become mixed with the air in the room before reaching the UV beam. Likewise, when the source is in the center of the room and the fan is blowing downward, the bacterial spores will likely be mixed with room air prior to reaching the UV beam. Only when the source was directly beneath an upward blowing fan could the bacterial spores enter the UV beam with minimal prior mixing of the spores and room air. Because tests conducted by Linnes et al. [4] were all done with the source directly beneath an upward blowing ceiling fan, their results do not have general applicability. They apply only for very specific scenarios, such as when a bed-ridden infectious patient is directly below an upward blowing ceiling fan. For other scenarios, the percentage reduction would be expected to be less than reported by Linnes et al. [4]. Nevertheless, the use of eggcrate panels as a UV screen in place of louvers on the UV fixtures results in a marked improvement in the efficacy of upper-room UVGI compared with commercially available louvered UV fixtures as reported by Linnes et al. [4].

CONSENT

Not applicable.

ETHICAL APPROVAL

Not applicable.

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SECTION 4

Agricultural Sciences & Economics

*America I. Zamora-Torres and Francisco Javier Ayvar Campos,
Universidad Michoacana de San Nicolas de Hidalgo,
Institute for Economic Research
and Business, Ciudad Universitaria, ININEE, Mexico*

Impact of Customs Regulation in the Efficiency on International Trade

1. INTRODUCTION

A few years ago the role of customs was to be able to enforce regulation tariffs, non-tariffs and administrative regulations for all products that enter or leave the countries, following international trade agreements [1]. However, consumers demand has been changing as international trade with it. Whereby, customs under this trend should be facilitators of foreign trade through the tax and regulatory simplification.

Overall, the role of the customs service is to be a business facilitator, policy adviser and implementer and safety provider. The proper execution of these functions can foster a fair market, ensure timely delivery and reduce costs of international trade, which leads to the competitive advantage of firms and nations in the global value chain [2].

Currently, customs are confronted to a rapidly changing environment: changing patterns of production and consumption intensified international trade, new global threats. In this context, customs play a major role by ensuring a constant balance between protecting society and simplification of trade.

Customs efficiency has a significant impact on reducing cost associated with trade and business performance management, so a close link between competitiveness in international trade and customs can be identified [2]. In the other hand, a poorly function of customs administration may indeed affect the improvements that have been made in other areas related to international trade [1].

In such conditions customs administrations are relevant regulatory operators on international trade and goods movements, with more important roles and complex tasks. Customs administrations are expected to facilitate and accelerate international trade and transport [3].

The main questions of this paper are: 1. How big is the trade impact caused by customs regulation across countries on economic variables such as efficiency and 2. What measures should be taken in order to achieve the efficiency goal. The objective of this research is focused on determining the relative efficiency of countries customs as a key of international trade. This paper is concentrated on research into the relative efficiency of 29 countries Customs Service s organizational units. For this purpose, dimensions of customs service efficiency, and relevant inputs and outputs were identified. Data have been collected from World Bank data base and the World Customs Organization, and Data Envelopment Analysis is used for the purpose of data processing and quantifying relative efficiency.

2. LITERATURE REVIEW

Every organization that want to stand out or survive the past of the time is looking for be efficient. When we talk about efficiency different concepts pop out. The efficiency defined as the degree of optimization of the result obtained in relation with the resources used [4]. Efficiency as the relationship between goods and services consumed and the goods and services produced; or what is the same, services provided (outputs) in relation to the resources used to such an effect (inputs) [5]. Whereas in the private sector inputs and outputs are expressed in financial terms, identification of inputs and, especially, outputs in the public sector is much more complex [3].

Observing the public sector, *effectiveness*, which can be defined as *capacity to achieve goals*, gains a greater importance than efficiency [6]. In the public services there is no direct correlation between revenues and expenses [7]. The political system is oriented primarily to the achievement of goals defined in the political process, regardless of the cost-benefit ratio.

The assessment of the performance of the public sector has long been a topic of interest to economists, public administration scholars and management scientists [8] and [9]. Some studies analyzed the productivity of government and

compared the productivity of whole public sectors of different countries. That is the case of [10] have carried out an international comparison of public sector efficiency based on the public sector performance (PSP) and efficiency (PSE) indicators. These indicators comprise a composite and seven sub-indicators. Four of them are opportunity sub-indicators that take into account administrative, education and health outcomes and the quality of public infrastructure and those that support the rule of law and a level playing-field in a market economy. Three other indicators reflect the standard Musgravian tasks for government: allocation, distribution and stabilization. After defining indicators, the efficiency is measured via the non-parametric frontier technique.

[11] performed a study of efficiency using Free Disposal Hull (FDH) – FDH model has a discrete nature, i.e. the efficient reference point for an inefficient DMU is not chosen as a point on a continuous efficiency frontier, but among the existing DMUs-model based on sixteen countries of European Union, United States and Japan where he used as inputs variables such as health spending, GDP, population, spending on health, spending on public order and security. [12] examined the tax efficiency of twenty countries of the Organization for Economic cooperation and Development (OECD) using as inputs the public expenditure on education (PPA) and public expenditure on health and as output the PISA test performance, death rate and infant mortality and maternal.

Other studies focus on the public sector productivity measurement can also take place at the level of the organization and from a bottom up or service-user perspective [9]. The World Bank has adopted this approach with regard to assessing some aspects of the effects of regulation with the development of their Doing Business database, where three indicators from the database are particularly relevant to the assessment of public administration quality and productivity.

Some customs administrations have developed some systems to measure efficiency. The European Commission has established its Measurement of Results (MoR) project for the customs services of member states. Work on measuring the results of customs activities performed by member states is underway and the results achieved enable member states to compare their performance to the Community standard and act to improved customs operations where necessary. [3] focus on research into the relative efficiency of the Croatian Customs Service s organizational units considering the number of employees and cost as inputs and

number of customs declarations, public revenues and number of offences as outputs.

3. MATERIALS AND METHODS

The method used in this study is the Data Envelopment Analysis known as DEA, developed by [13] and [14]. The DEA approach has been widely applied to address various decision analysis problems due to its usefulness in evaluating multi-criterion systems and providing improvement targets for such systems. DEA is a non-parametric mathematical programming technique that determines an efficient frontier of the most efficient decision-making units (DMUs) regarding the notion of Pareto optimality and calculates the efficiency of each DMU relative to this efficient frontier based on multiple observed inputs and outputs. An efficiency score of a DMU is generally defined as the weighted sum of outputs divided by the weighted sum of inputs, while weights need to be assigned. To avoid the potential difficulty in assigning these weights among various DMUs, a DEA model computes weights that give the highest possible relative efficiency score to a DMU while keeping the efficiency scores of all DMUs less than or equal to one under the same set of weights [16].

DEA defines the ratio between all weighted relevant outputs and inputs, so it could be presented by following equation [17]:

$$efficiency = \frac{\sum_{r=1}^s u_r y_r}{\sum_{i=1}^m v_i x_i}$$

where:

- y_r =amount of output r ,
- u_r =weight assigned to output r ,
- s =total number of output r ,
- x_i =amount of input i ,
- v_i =weight assigned to input i ,
- m =total number of input i .

Another useful output obtainable from DEA model is reference or lambda weights. Reference weights can be used to identify where along the efficient frontier a particular DMU would be located if that DMU were efficient. Efficient DMUs receive a reference weight of one and for DMUs, which are not efficient, reference weights varying between zero to one are calculated mathematically by DEA model

referencing one or more efficient DMUs [18]. These reference weights indicate the proportion of each of these efficient DMUs criteria values which, when summed together, determine the point of efficiency for the inefficient DMUs being evaluated. In this way, DEA can identify not only how efficient a particular DMU may be, but also provide a benchmark on the non-inferior frontier, where the DMU would be efficient. This benchmark can then be used as a value for negotiation with inefficient DMUs and necessary improvement [19].

Data envelopment analysis was initially introduced by [13] Charnes, Cooper and Rhodes in 1978. They proposed the basic DEA model, which was named the CCR model, departing constant returns to scale (CRS) where a change in the levels of inputs leads to a change in proportional output level. The mathematical formulation for the model developed by [13] is:

$$\begin{aligned} \max \quad & \sum_{k=1}^s v_k y_{kp} \\ \text{s.t.} \quad & \sum_{j=1}^m u_j x_{jp} = 1 \end{aligned}$$

$$\sum_{k=1}^s v_k y_{ki} - \sum_{j=1}^m u_j x_{ji} \leq 0 \quad \forall i$$

$$v_k, u_j \geq 0 \quad \forall k, j$$

where:

$$k = 1 \text{ a } s,$$

$$j = 1 \text{ a } m,$$

$$i = 1 \text{ a } n,$$

y_{ki} = Amount of output K produced by DMU i ,

x_{ji} = Amount of input j produced by DMU i ,

v_k = Weight given by the output k ,

u_j = Weight given by the input j .

Banker, Charnes and Cooper modified the CCR model by adding a constraint for the calculation of the variable returns-to-scale (VRS). The new model is called the BCC model [14,15] being this model:

$$\min \theta_k$$

Subject to:

$$\theta_k x_{ik} - \sum_{l=1}^n \theta_l x_{il} \leq 0, \quad i = 1, 2, \dots, M$$

$$\sum_{l=1}^n \theta_l y_{il} - \theta y_{jk} \leq 0, \quad j = 1, 2, \dots, S$$

$$\sum_{l=1}^n \theta_l = 1$$

DEA methodology allows to determine CCR and VRS models of efficiency [20]. The main differences between two models are presented in Fig. 1.

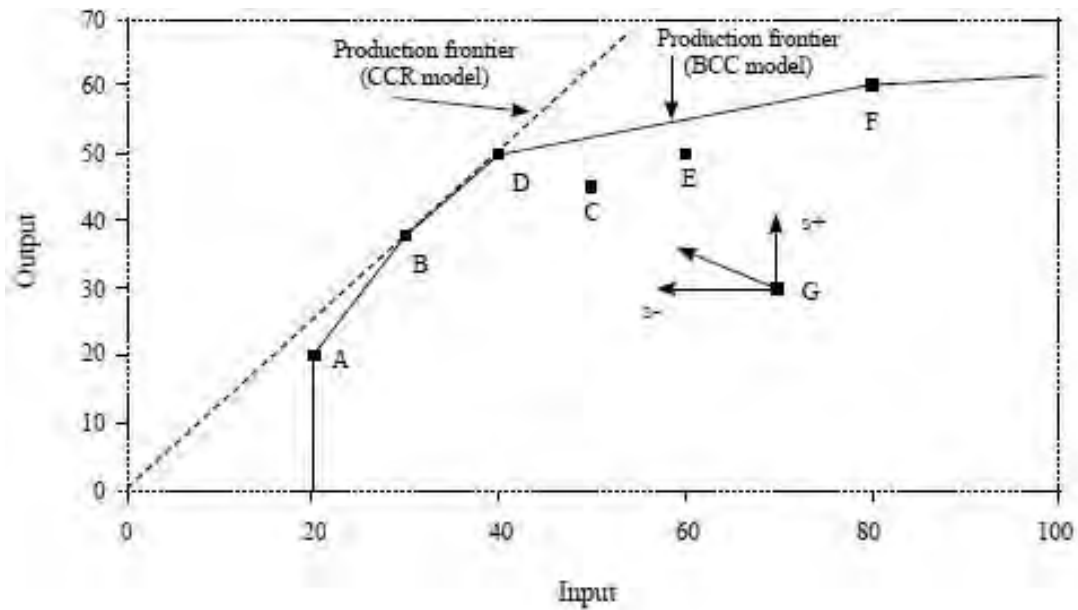


Fig. 1. Differences between CCR and BCC models

Source: Cooper, Seiford and Tone (2006)

3.1 Choice of DEA Model, the Selection of the Input and Output and Efficiency Assessment

From the literature review and the descriptions of the main customs functions described it is possible to recognize the economic and social purpose of the customs service, i.e. by meeting the main functions, customs services achieve their outcome that represents an impact on society of a particular public sector activity [21].

Customs service uses inputs similar to those of other organizations. In general, human and financial resources, assets and information can be highlighted [3].

When creating the model for the assessment of efficiency using DEA methodology, it is necessary to take into account several elements. In this study, these elements are the orientation of the model, differences in returns-to-scale that DEA models assume and the number of analyzed inputs and outputs. Anyway, in order to obtain reliable results, it is necessary to know the characteristics of business processes of the analyzed DMUs.

At the beginning, it is necessary to define the orientation of the model, i.e. make a choice between input, output or input-output (mixed) oriented models. Given the needed rationality in using inputs, for this research, the most suitable are input-

oriented models. In addition, because of the present financial and economic situation of most of the countries, rationalization of inputs is the most suitable option.

DEA models assume constant (CRS) or variable (VRS) returns-to-scale. It is not possible to determine reliably which models are more suitable before the analysis, because the real characteristics of returns-to-scale are not known. This is the reason why authors of DEA recommend the application of both, constant and variable returns-to-scale models. When the results of both models coincide to a large extent, it is proper model that assumes constant returns-to-scale. Otherwise, a more suitable model is that which assumes variable returns- to-scale [18].

One of the limitations of DEA is the total number of inputs and outputs that can be included in the analysis. Specifically, it is advisable for the number of analyzed DMUs to be at least three times greater than the sum of inputs and outputs included in the analysis [22]. Therefore, one of the main problems is the selection of relevant inputs and outputs that depict the best way the business processes of the analyzed DMUs. Based on previously conducted research, for this study the following inputs and outputs were selected:

3.1.1 Inputs

- o Number of employees. Human resources are the basis for building strategy of organization, and all other resources arise from their activities [23]. Their skills, capabilities, quality and ethics are among the most important determinants of organizational efficiency, including customs services. In other words, human resources are the basis of the administrative capacity of every customs system, and they are the most important and unavoidable factor that affects all aspects of customs service s organization [3].

- o Cost. Financial resources are needed to achieve the preconditions for the purchase of necessary assets and other material resources and the recruitment of human resources in customs service.

- o Number of customs agencies. Assets and material resources are constituted by different kinds of buildings and equipment.

Number of documents required. In the knowledge society information is a very important input. The basis on which to obtain quality information is a quality information system capable of collecting and processing large amount of data in order to select those that are important for the direction of the customs

services resources. However this not necessarily implies the use of extensive paper works that ends as bureaucratic ballast.

3.1.2 Outputs

- o Collected public revenues. Although customs revenues are decreasing due to the liberalization of international trade and reduction of tariffs, customs services still retain an important role in financing public needs. Therefore, measuring revenue leakages gives information to customs services about effectiveness and efficiency in collecting taxes.

- o Volume of the international trade and value of the international trade. Participation in international trade has become one of the key factors in the international competitiveness of nations and customs. Conditions in the business environment in past decades have changed under the influence of the relevant growth of trade volume (as the result of elimination of tariffs and other barriers to trade, i.e. consequence of trade liberalization), growth of trade complexity (under the influence of globalization, many different countries organize production of commodities, and many of them have concluded treaties that regulate international trade flows), increased speed of trade (information technology and technological development) in general allow the application of just in time production, which requires fast and seamless cross-border movement of goods [24].

For the purposes of this study, inputs and outputs of customs houses from 2012. 2012 was the year when the economies start to grow after been hit by the world financial crisis. The data recollected for the inputs and outputs was obtained from the [24,25,26,27,28].

4. RESULTS AND DISCUSSION

Technical scores (CRS and VRS) and scale efficiency have been estimated in an input-oriented model. The Table 1 shows that, according to the global technical efficiency, which departs from constant returns to scale (CRS), 8 customs houses were efficient. While the scores of the pure technical efficiency (variable returns-to-scale), 14 customs houses were efficient. The efficiency of de CRS efficiency to VRS efficiency increase which is particularly significant. This gives rise questions on the role played by the effect of the variable returns to scale in the inputs behavior of customs houses.

Table 1. Efficiency scores: CRS, VRS and SE

DMU	CRS	VRS	SECRS/VRS	Rank	Type
Argentina	0.70	0.73	0.97		increasing
Australia	0.94	0.96	0.97		decreasing
Chile	0.93	1.00	0.93	1	decreasing
China	1.00	1.00	1.00	1	constant
Costa Rica	0.71	0.83	0.85		increasing
Hong Kong	0.98	1.00	0.98		increasing
India	1.00	1.00	1.00	1	constant
Indonesia	0.53	0.58	0.91		increasing
Panama	1.00	1.00	1.00	1	constant
Singapore	1.00	1.00	1.00	1	constant
Sweden	0.68	1.00	0.68		increasing
Switzerland	0.96	1.00	0.97		decreasing
Thailand	0.56	0.65	0.86		increasing
Venezuela	0.36	0.52	0.69		increasing
Belgium	0.78	0.90	0.87		increasing
Brazil	0.88	0.88	1.00		increasing
Canada	0.77	0.86	0.89		increasing
Denmark	0.79	0.94	0.84		increasing
France	0.82	1.00	0.82		decreasing
Germany	1.00	1.00	1.00	1	constant
Italy	0.60	0.73	0.82		increasing
Japan	0.78	0.83	0.94		increasing
Korea	1.00	1.00	1.00	1	constant
Mexico	0.65	0.80	0.81		increasing
Russian Federation	1.00	1.00	1.00	1	constant
Spain	0.96	1.00	0.96		decreasing
Turkey	1.00	1.00	1.00	1	constant
United Kingdom	0.78	0.84	0.93		increasing
United States	0.65	0.82	0.79		increasing

Source: Author's calculation

The customs with lowest scores of efficiency were Venezuela with 0.36 score, followed by Indonesia with 0.53 score in the first analysis (CRS) and with scores of 0.52 and 0.58 scores respectively at the second analysis (VRS), meaning that they should be able to attain the same level output using only 52 and 58 per cent of the inputs they are currently using. The average value of scale efficiency is 0.91 in the model. The average scores are quite high indicating a strong efficiency among customs houses.

It should be noted that although some customs houses show values of efficiency some of the them shows a type of diminishing performance (the increase of a factor generates an increase of minor proportion to the initial increase). For example, Chile, Switzerland, France and Spain custom houses show a diminishing performance.

At the opposite some customs houses do not show efficiency of any type but the increase of a factor generates an increase of major proportion to the initial increase as it is the case of the customs houses as Argentina, Costa Rica,

Indonesia, Thailand, Venezuela, Belgium, Brazil, Canada, Denmark, Italy, Japan, Mexico, United Kingdom and United States.

Relatively efficient customs houses appear in the reference set of relatively inefficient customs houses. So, frequency of occurrence in the reference set can be considered as indicator of whether the customs house is a model for other customs houses. Particularly, if a relatively efficient customs house is not a member of any reference set, that means that it is relatively efficient, but it does not appear as a model that should be achieved by the other customs houses. On the other hand, a higher frequency of occurrence in the reference set means a higher probability that it is an example of a good performance. Therefore, Fig. 2 shows the frequency of relatively efficient in the reference set of relatively inefficient customs houses.

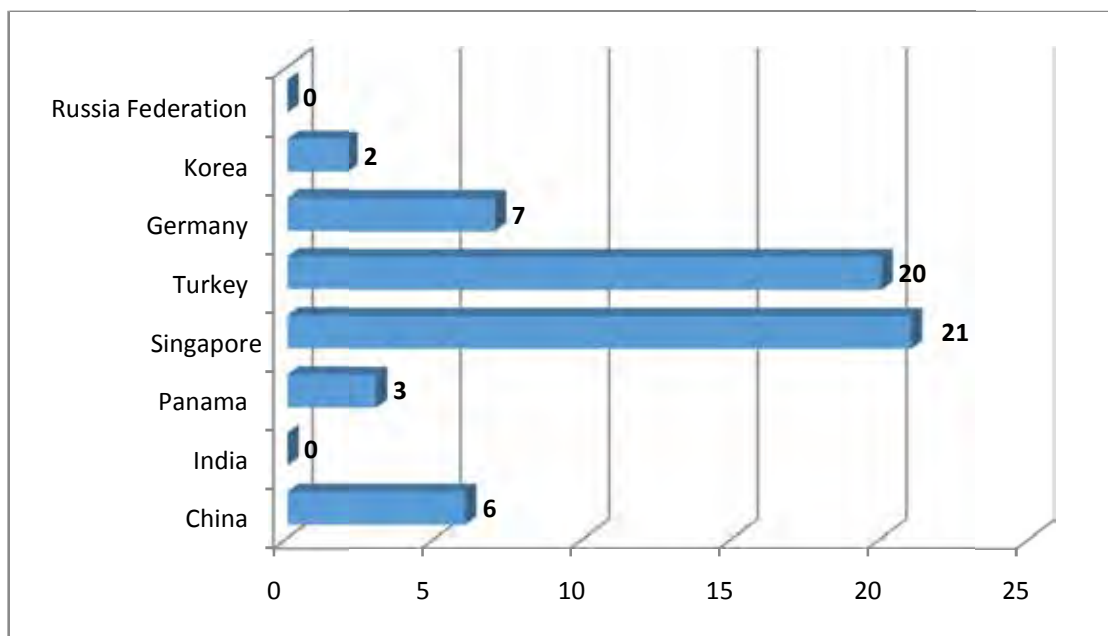


Fig. 2. Frequency in reference set

Source: Author's calculation

After examining occurrences in inefficient customs houses references set, it can be concluded that customs houses of Singapore, Turkey, Germany and China are the most frequent DMUs in the reference set. This means that mentioned customs houses are models of efficient performance and their scores are targets for the inefficient.

Analyzing the frequency set by input and output individually it can be observed which countries are the most used as reference by variable and which countries could be observed as a role model by country. In the case of Mexico as we

can observed in Table 2 Singapore is a good role model for number of customs, while Sweden is a good example for customs expenses and Turkey for the employment of human resources.

Table 2. Frequency in reference set by inputs and outputs

Unit name	Customs Number {Input}	Customs expenses {Input}	Humans Resources {Input}	Papers {Input}	Taxes {Output}
Argentina	Germany	Singapore	Sweden	Turkey	
Australia	Germany	Chile	China	Singapore	Turkey
Belgium	Germany	Singapore	Sweden		
Brazil	Panama	Singapore	Turkey		
Canada	Germany	Singapore	Sweden	Turkey	
Costa Rica	Singapore	Sweden	Turkey		
Denmark	Germany	Singapore	Sweden		
Hong Kong	Singapore				
Indonesia	Singapore	Turkey			
Italy	Singapore	Turkey			
Japan	Singapore	Turkey			
Mexico	Singapore	Sweden	Turkey		
Switzerland	Singapore	Turkey			
Thailand	Singapore	Turkey			
United Kingdom	Singapore	Turkey			
United States	Singapore	Turkey			
Venezuela	Singapore	Turkey			

Source: Author's calculation

With regard to the question addressed of what measures should be taken in order to achieve the efficiency goal? The Table 3 shows a final analysis by country of each one of the inputs and outputs used divided in three stages: the actual value of the input/output, the target value, and the improvements that need to be done.

Taking for example the case of Mexico, the Table 3 shows in order to achieve efficiency (keeping the same number of outputs) costs are necessary to cut down the number of these by 19 percent; take down the total expenses by 26 percent and even reduce the number of employees from 14,992 to 12, 028 employees.

There are several targets that need to be apply toward efficiency, but as we can observe in Table 3 there isn't a common strategy for all the customs due to each country has different problems to solve if each country wants to have a better customs administration which lead eventually an even better performance at global markets.

Table 3. Actual, target and slacks analysis by inputs and outputs

Unit name	Score	Actual	Actual customers number (I)	Actual customers expenses (I)	Actual Human resources (I)	Actual doc numb (I)	Actual revenues (O)	Actual trade vol (O)	Actual trade value (O)	Target Customs number (I)	Target customs expenses (I)	Target doc numb (I)	Target revenues (O)	Target trade vol (O)	Target trade value (O)	Slacks Customs number (I)	Slacks customs expenses (I)	Slacks Human resources (I)	Slacks doc numb (I)					
Argentina	72.51	3	3	2.55	14995	3	22.85	191.5	292.6	2.175	1.266	10873	2.175	22.85	211.3	332.3	0	0.197	0	0	0	0.022	0.034	
Australia	96.43	2	2	1.4	14994	3	22.85	169.2	383	1.929	1.35	14459	2.519	22.85	254.1	383	0	0	0	0.047	0	0	0.094	0
Belgium	90.2	2	2	1.15	14996	2	20.1	131.1	256.8	1.804	1.037	13527	1.416	21.69	187.5	267.3	0	0	0	0.049	0.063	0.063	0.009	0.009
Brazil	88.15	3	3	2.49	14996	2	21.33	201.4	432.7	2.545	1.226	13219	1.763	21.34	318.8	432.7	0.017	0.327	0	0	5E-04	0.13	0	0
Canada	86.33	2	2	1.42	14987	2	20.1	109.9	174	1.727	1.136	12938	1.727	20.1	175.1	265.4	0	0.03	0	0	0	0.072	0.078	0.078
Costa Rica	83.07	3	3	2.53	14363	2	19.85	201.6	214.4	2.145	1.131	11931	1.661	22.37	201.6	297.9	0.058	0.328	0	0	0.1	0	0.071	0.071
Denmark	93.96	2	2	1.07	14465	2	20.1	130.6	218	1.879	1.005	13592	1.306	22.41	194.1	271.2	0	0	0	0.072	0.092	0.07	0.045	0.045
Hong Kong	100	2	2	1.03	14994	1	24.37	182.6	219.8	2	0.9	14159	1	24.93	215.5	284.5	0	0.044	0.056	0	0.022	0.036	0.055	0.055
Indonesia	57.86	5	5	2.47	14990	5	21.54	158.1	358.7	2.563	1.429	8672	2.688	24.13	234.1	385.5	0.055	0	0	0.026	0.104	0.084	0.023	0.023
Italy	72.94	4	4	1.66	14990	4	20.1	102.2	225.8	2.331	1.211	10935	1.992	24.46	226.4	343.8	0.098	0	0	0.116	0.174	0.138	0.101	0.101
Japan	83.11	3	3	1.28	14991	4	23.22	137.1	198.3	2.174	1.064	12460	1.523	24.68	221.2	315.8	0.053	0	0	0.225	0.059	0.093	0.1	0.1
Mexico	80.23	4	4	2.37	14992	2	19.87	140.3	205.9	2.042	1.14	12028	1.605	19.87	177.3	265.2	0.194	0.257	0	0	0	0.041	0.051	0.051
Switzerland	99.56	4	4	1.12	12800	2	24.72	174.3	272.1	2.145	1.036	12744	1.435	24.72	220.3	310.6	0.306	0.027	0	0.069	0	0.051	0.033	0.033
Thailand	64.99	5	5	2.04	14994	5	19.26	211.5	348.9	2.453	1.326	9744	2.359	24.29	230.5	365.8	0.133	0	0	0.111	0.201	0.021	0.014	0.014
United Kingdom	83.59	3	3	1.27	14934	3	22.89	120.6	174.7	2.172	1.062	12483	1.516	24.69	221.2	315.3	0.056	0	0	0.124	0.072	0.112	0.12	0.12
United States	81.76	3	3	1.33	14942	4	19.45	135.1	184.6	2.199	1.087	12216	1.598	24.65	222.1	320.3	0.042	0	0	0.209	0.208	0.096	0.116	0.116
Venezuela	52.12	6	6	2.9	14997	8	15.99	141.3	288.5	2.651	1.512	7817	2.952	24.01	237	401.2	0.079	0	0	0.152	0.32	0.106	0.096	0.096

Source: Author's calculation

4. CONCLUSION

The purpose of this study has been to estimate the characteristics of technical and scale efficiency of the customs for 29 countries. DEA methodology has been adopted in order to construct an efficient boundary against which to measure the degree of efficiency of the involved units.

This methodology does not require a uniform reduction of all inputs, as in the standard model. Instead, this method minimizes the distance friction for each input and output separately. As a result, the reductions in inputs and increases in outputs necessary to reach the efficiency frontier are smaller than in the standard model.

The results of our study can be summarized as follows:

1) The level of the global technical efficiency is equal, on average, to 83%, the level of pure technical efficiency on average is 89%. This means that the same levels of output could be provided using around the 83 - 89% of the original amount of input.

2) According with the result obtained of scale efficiency on average the scores is 91%, what shows the necessity of reduction of inputs for most of the economies.

3) These results also show the similar degree of performance on the economies considerate for this study.

4) It also important remarks the type of performance that the countries had according to the analyzed indicators. As it is the case of some countries with a low efficiency score but with an increasing performance, or at the opposite behavior countries with an efficient score but with a decreasing performance. These results point out the importance on the improvement of the inputs used.

5) Examples of good performance for most of the countries analyzed are the customs houses from Singapore and Turkey. These leads to look closer the strategies and politics implemented in these countries related to customs administration.

The aim of the study concerns the identification of the strength and weaknesses in customs houses of 29 countries, not only in order to know which customs houses performance is efficient and which not. But also to guide through these study the behavior of the public administration in these matter. However, it is necessary to be careful with the judgment and conclusions that can be drawn from the results. The comparison between the outcomes with the targets settled will determinate if performance is satisfactory. The scope of this study is just a

comparative analysis of the activity conducted by the customs houses as a key of international trade.

There are several points where the research has placed its emphasis that deserve further studies. The analysis indicates that the organizational structure of some Customs Administration is inadequate. This stems from the fact that if particular customs houses reduced their inputs to the desirable level, their existence would not be possible, because in particular cases, projected inputs are so low that they could not ensure fulfillment of main customs houses tasks. Thus, future research should focus on finding and proposing a more adequate organizational structure.

Contemporary circumstances in which customs services operating imply new challenges at global markets. From the initial, primarily fiscal role, customs services in developed and most other countries, have transformed, or are in the process of transformation into organizations with broader and still very important tasks. In addition, further efforts should be focused on the quantification of undetected irregularities and the size of tax evasion. Besides the possibility of obtaining a more reliable assessment of efficiency, the detecting of the undetected provides an opportunity for quality risk assessment and eventually for increasing overall efficiency and effectiveness.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Shoko Ishikawa, Shotaro Ando and Seiko Yoshikawa,
National Agricultural Research Center, Kannondai, Tsukuba, Japan,
Japan International Research Center for Agricultural Sciences,
Maezato-National Institute for Agro-Environmental Sciences, Tsukuba,
Kannondai, Tsukuba, Japan

Effects of Planting Sugarcane and Napier Grass on N Leaching from Lysimeters under High Application of Cattle Manure

1. INTRODUCTION

Nitrate concentration in groundwater is regulated by laws and regulations in different parts of the world [1-3]. Agriculture has been considered as a major source of nitrate leaching to surface and ground waters [4-6]. Pionke et al. [7] observed a nitrate-N concentration as high as 209 mg l⁻¹ from drainage below the root zone in a horticultural area located in Western Australia. Fujiie et al. [8] pointed out that the reduction in nitrate leaching estimated in an area of Miyakojima-island during the period between 1977 and 2005 was partly attributable to the halved amount of fertilizer application between 1980 and 2006 indicating that agriculture was actually a major source of nitrate leaching in the studied area. Improved methods of fertilization such as split application and the use of slow releasing fertilizers have been recognized effective in reducing nitrate leaching [9-10].

However, there are situations where high rates of fertilization are practiced [11-12]. De Paz and Ramos [13] mentioned growers in Spain who apply excessive amount of fertilizers by paying little attention to local recommendations. Similar cases can be found in other parts of the world [14-15]. In Japan, vegetables and tea [16-17] are the crops that usually receive highest rates of fertilizer. Nishio [18] reported that amounts of unutilized nitrogen are especially high, more than 300 kg/ha⁻¹, in the case of celery, eggplants, cucumbers and tea. The growers apply high rates of fertilizer to these crops, as they are less likely to show negative response, such as yield decline, to heavy fertilization. In the case of tea, yield increased with the application of 1006 kg/ha⁻¹ of mineral N. High rates of fertilizer

application by vegetable growers are attributed to the relatively high economic value of commodities [19-20]. It is common that crops receiving high rates of chemical fertilizers are also applied with high rates of manure [21], another major causal factor of nitrate leaching [22-24].

In areas where livestock is intensively produced, the disposal of excess manure is a concern [25-26]. In Japan, livestock production once was closely linked to arable farming when scales of farms were small and manure was seen as a valuable source of nutrients. Concentration of livestock sector and spread use of chemical fertilizer brought about a situation where livestock sector became separated from arable farming [27-29] leading to manure shortage in arable farms [30], while excess manure being piled up in livestock farms [28]. Compared to chemical fertilizers, nutrients released from manure are much harder to control especially when applied at high rates continually [27,31]. As it has been rather common for growers to focus on the role of soil conditioner of manure paying less attention to the aspect of fertilizer, amounts of nutrients added to soils through manure application are very often omitted from calculation of nutrients balance [22,32] leading to the increased number of fields overdosed with excess nutrients [32-33]. In extreme cases, accumulated nutrients need to be removed by means of planting green manure crops or drained by a large amount of water in the case of glasshouse situations where natural drainage by rainfall cannot be expected. In any case, nitrogen-releasing effects of manure could last relatively a long period [34-35].

Outstanding ability of gramineae crops to take up N has been reported [25,36-38]. Sugarcane has been claimed to be promising as a double purpose crop, i.e. feed and cleaning crops for its ability to accumulate little amount of nitrate even when applied with high rates of N [39]. Effects of green manure crops and/or catch crops especially grown in winter on nitrate leaching have been studied relatively well. Thomsen and Christensen [40] and Thomsen [23] employed ryegrass as a catch crop in a series of lysimeter experiments and observed substantial reductions in nitrate leaching, although nitrate could be released again from the crop depending on methods and timings of incorporation. There seem, however, to be fewer studies so far that have looked into the effects of cultivating summer crops of gramineae such as sugarcane and napier grass on nitrate leaching from soils. It would serve agriculture as well as science to find out if the claimed ability

of gramineae crops to take up large amount of N has significant meaning in terms of nitrate leaching from soils.

The objective of the present study is therefore to evaluate the effects of planting summer crops such as sugarcane and napier grass as well as a winter crop of triticale on the amount of drained water and that of leached nitrogen under the conditions of high application of cattle manure.

2. MATERIALS AND METHODS

A lysimeter experiment was conducted at National Agricultural Research Center for Western Region, Zentsuji (34°13 N, 133°46 E) during the period from December, 2007 until December, 2010. A lysimeter was the size of 2.9 m by 2 m with the depth of 1 m. Six lysimeters were employed for the experiment and gravel was spread over the bottom. Three lysimeters were filled with soil of granite origin in June, 2006 and sunflower grown, while the other three were filled in December, 2007. To each lysimeter, cattle manure of 10.0 kg·m⁻² (100 g·m⁻² of N) was applied in December, 2007 before commencing the experiment. During the experiment, cattle manure of 6.0 kg·m⁻² (91 g·m⁻² of N) and 5.2 kg·m⁻² (78 g·m⁻² of N) were applied to each plot and incorporated into the soil on 15 May and 22 July in 2009 respectively. In 2010, neither cattle manure nor chemical fertilizer was applied. In total of three years, 21.2 kg·m⁻² of cattle manure and 269 g·m⁻² of nitrogen were applied to each lysimeter supposing a high range of N rates possibly applied to some crops such as asparagus [21] and celery [18]. As senescence of leaves started being observed with napier grass from the prevailed dry condition in summer in 2010, irrigation of 34 mm was applied three times to each lysimeter on 24, 30 August and 9 September.

Treatments were consisted of the combination of a winter crop, triticale (*X. Triticosecale* Wittmark, cv. Ryekokko II) and summer crops, sugarcane (*Saccharum* spp. hybrid) and napier grass (*Pennisetum purpureum* Schumach. cv. Merkeron) (Table 1). Six lysimeters were assigned to three treatments creating two replicates for each treatment. The lysimeters filled with soil in 2006 were assigned to Rep. 1 and those in 2007 to Rep. 2. In 2008 and 2009, a half of the sugarcane plot was planted with seedlings of a sugar cultivar, NiF8, while the other half with those of KRf093-1, the first feed cultivar of sugarcane bred for feed use in Japan

[41]. In 2010, the whole plot was planted with seedlings of KRf093-1. As to the control, plots were left with weeds in 2007/2008, while they were maintained bare by incorporating emerged weeds periodically in 2009 and 2010.

Table 1. Crop sequence in lysimeter experiments

Crop Sequence	2008	2009		2010		
Y1-Y2-Y3	Winter untreated	Summer untreated	Winter bare soil	Summer bare soil	Winter bare soil	Summer bare soil
C-C-C						
TS-TS-TS	triticale (Ryokokko II)	sugarcane (NiF8, KRf093-1)	triticale (Ryokokko II)	sugarcane (NiF8, KRf093-1)	triticale (Ryokokko II)	sugarcane (KRf093-1)
S-S-TN	untreated	sugarcane (NiF8, KRf093-1)	bare soil	sugarcane (NiF8, KRf093-1)	triticale (Ryokokko II)	Napier grass (Merkeron)

Y: year; C: control; T: triticale; S: sugarcane; N: napier grass

For each lysimeter, a drum of 84 litre volume was placed to collect the drained water. The depth of the water was measured to estimate the amount of drained water. Water samples were taken to estimate the amount of leached mineral nitrogen. After the measurement and collection of the samples, water was drained from the drum. Although water was carefully collected especially after the rainfall, there were a few occasions when water overflowed the drum. Aboveground plant materials were sampled at harvest of each crop (Table 2) and the fresh matter weight was determined. A subsample was oven-dried at 70°C for 5 days and the dry matter weight determined.

Table 2. Planting, harvest and sampling dates of triticale, sugarcane, napier grass and weeds

Year	Crop	Triticale		Sugarcane/ Napier grass		Weeds
		p	H	p	H	Sp
2008	Control	-	-	-	-	5-Nov-08
	Triticale-Sugarcane	21-Dec-07	25-Apr-08	12-May-08	5-Nov-08	-
2009	Sugarcane	-	-	-	-	12-May-08
	Control	-	-	-	-	-
	Triticale-Sugarcane	15-Jan-09	15-May-09	19-May-09	25-Nov-09	15-May-09
2010	Sugarcane	-	-	-	-	-
	Control	-	-	-	-	-
	Triticale-Sugarcane	15-Jan-10	26-Apr-10	30-Apr-10	16-Nov-10	-
	Triticale-Napier grass	-	-	-	-	-

P: planting; H: harvest; Sp: sampling

2.1 Analysis of Samples

Sampled water was subjected to the analysis of nitrate-N and ammonium-N [42]. Dried plant materials were milled and filtered through 2 mm mesh (No. 1003-S; Yoshida Seisakusho, Tokyo, Japan). The milled plant samples were subjected to the

analysis of total N concentration by the Dumas method with a Vario MAX CN (Elementar, Hanau, Germany). The nitrate-N concentration of sugarcane and napier grass plants was determined by Cataldo method [43].

2.2 Statistical Analysis

As the experiment was conducted in two replicates, results of both replicates were presented in figures and tables rather than showing a mean value with the standard deviation. Analysis of variance (ANOVA) was performed for some of the datasets using a statistical program of SPSS 13.0 (Tokyo).

3. RESULTS AND DISCUSSION

3.1 Weather

Daily mean temperature and total rainfall are given in Table 3. When the weather station near the experimental site was unable to record, the data sets recorded at the location, 3 km away from the site, were employed. In 2008, it rained very little during summer. High rainfalls recorded in July and August of 2009 and in July of 2010 were the events of a few days.

Table 3. Mean daily temperature and total rainfall over the three seasons

Month	2008		2009		2010	
	Temp. (°C)	Rainfall (mm)	Temp. (°C)	Rainfall (mm)	Temp. (°C)	Rainfall (mm)
January	5.1	78	5.5	69	5.5	20
February	4.4	42	7.3	84	6.9	76
March	9.4	131	9.2	57	8.5	144
April	14.3	89	14.8	48	12.4	115
May	18.7	147	19.7*	48	18.2	97
June	21.9	150	23.3	91	22.9	194
July	28.1	12	26.6*	187*	26.8	137
August	27.6	46	27.4*	132*	29.1	67
September	23.9	138	23.3	33	25.7	78
October	18.7	109	18.2**	73	18.7	127
November	12.3	82	12.6	116	12.1	30
December	8.1	30	7.6	34	7.8	54
Mean	16.0	88	16.3	81	16.2	95

**Data recorded at Senyu area (3 km away from Ikano area); **excludes two missing dates*

3.2 Water Drainage and N Leaching

Amount of the drained water in each year is presented in Figs. 1a, 1b and 1c. Effects of planting triticale on leaching of water were hardly observed compared to

control plots in 2009, while they were recognized in 2010. In 2007/2008, leaching was the least for one of the control plots. In 2009 and 2010, the plots planted with sugarcane or napier grass showed less leaching compared to control plots, i.e. bare soil, after summer until harvest. However, leaching of N could not be completely prevented at the events of severe rainfalls except for the plots planted with napier grass in 2010 (Table 4).

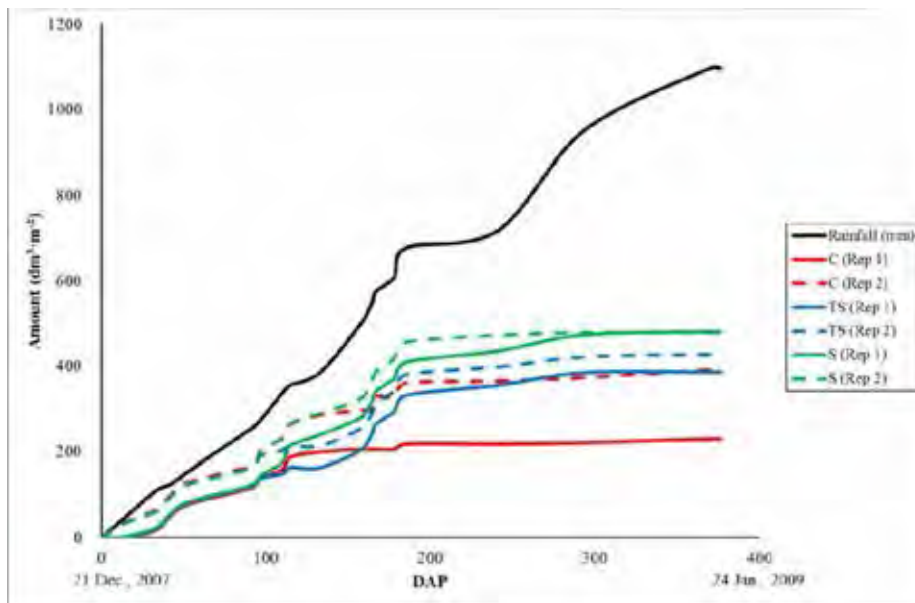


Fig. 1a. Accumulated rainfall (mm) and drained water ($\text{dm}^3\cdot\text{m}^{-2}$) in 2007/2008

C: control; TS: triticale-sugarcane; S: sugarcane; OAP: days after planting; Rep: replicate

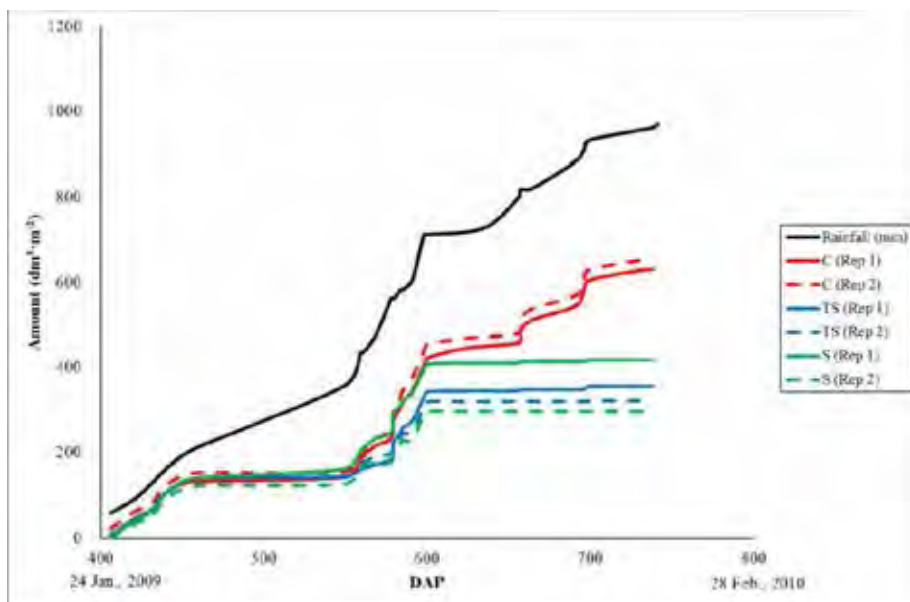


Fig. 1b. Accumulated rainfall (mm) and drained water ($\text{dm}^3\cdot\text{m}^{-2}$) in 2009

C: control; TS: triticale-sugarcane; S: sugarcane; OAP: days after planting; Rep: replicate

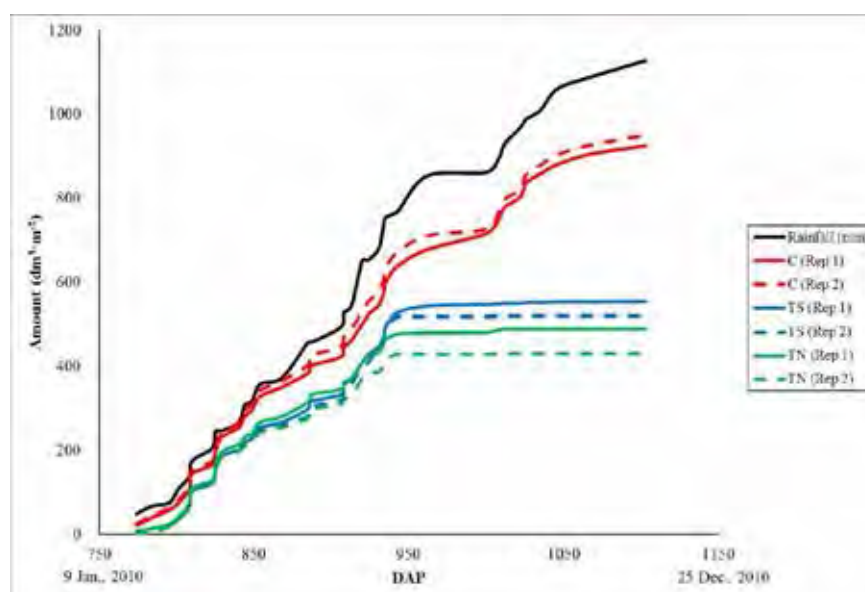


Fig. 1c. Accumulated rainfall (mm) and drained water ($\text{dm}^3\cdot\text{m}^{-2}$) in 2010

*C: control; TS: triticale-sugarcane; TN: triticale-napier grass; OAP: days after planting;
Rep: replicate*

**Table 4. Amount of drained water and leached mineral N at events
of severe rainfall**

Severe Rainfall Events			Drained Water	Leached mineral N
Start Date	End Date	Rainfall (mm)	(mm)	(g m^{-2})
20-Jul-09	21-Jul-09	80	53.5	5.9a
9-Aug-09	10-Aug-09	102	57.9	5.3a
11-Jul-10	13-Jul-10	70	44.3	2.1b
Crop Sequence				
Control (C)			60.9a	5.9a
Summer Crop (S)			51.9ab	5.2a
Winter-Summer Crop (TS and TN)			45.5b	3.3b
Severe Rainfall Events			.063	.001
Crop Sequence			.031	.010

C: control; S: sugarcane; TS: triticale-sugarcane; TN: triticale-napier grass

The change in mineral N concentration of the drained water observed during the experimental period is presented in Fig. 2. Lysimeters of Rep 1 exhibited extremely high concentrations of the drained water compared to those of Rep 2. It took approximately 300 days for the discrepancy of the two replicates to disappear. Mineral N concentration was reduced to zero by the presence of napier grass from July 2010.

The cumulative amount of leached mineral N during the experimental period is presented in Figs. 3a, 3b and 3c. In 2007/2008, a similar discrepancy between the two replicates was observed (Fig. 3a) as was in the mineral N concentration of

drained water. Both in 2009 and 2010, amounts of leached mineral N were significantly smaller for the lysimeters planted with sugarcane and napier grass compared to those assigned to control (Figs. 3b and 3c), (Table 5).

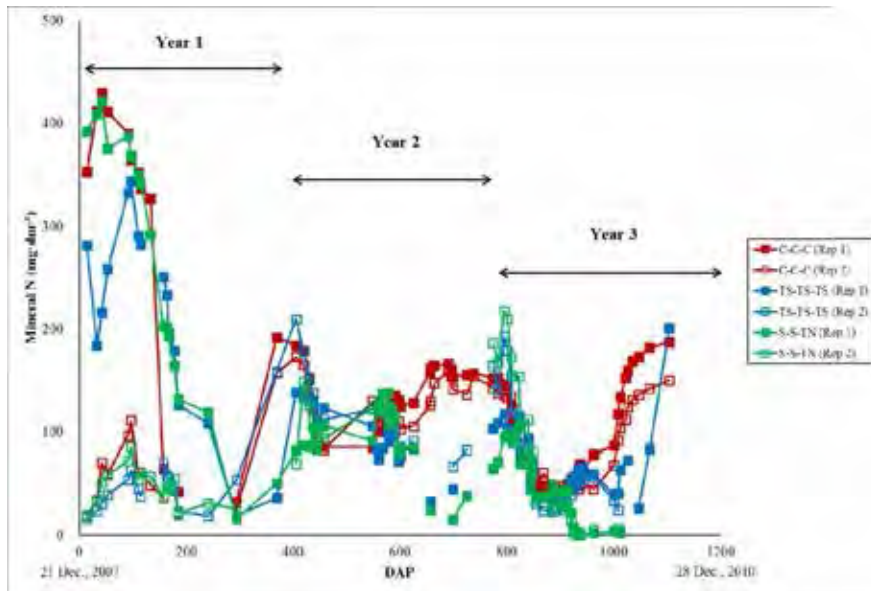


Fig. 2. Change in the concentration of mineral N in drained water during the experiment

C: control; TS: triticale-sugarcane; S: sugarcane; TN: triticale-napier grass; OAP: days after planting; Rep: replicate

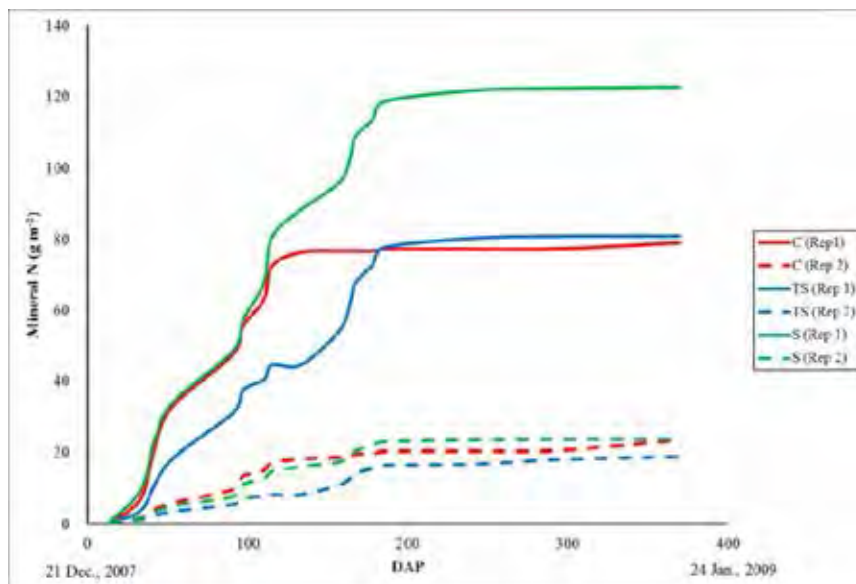


Fig. 3a. Accumulation of leached mineral N in 2007/2008

C: control; TS: triticale-sugarcane; S: sugarcane; OAP: days after planting; Rep: replicate

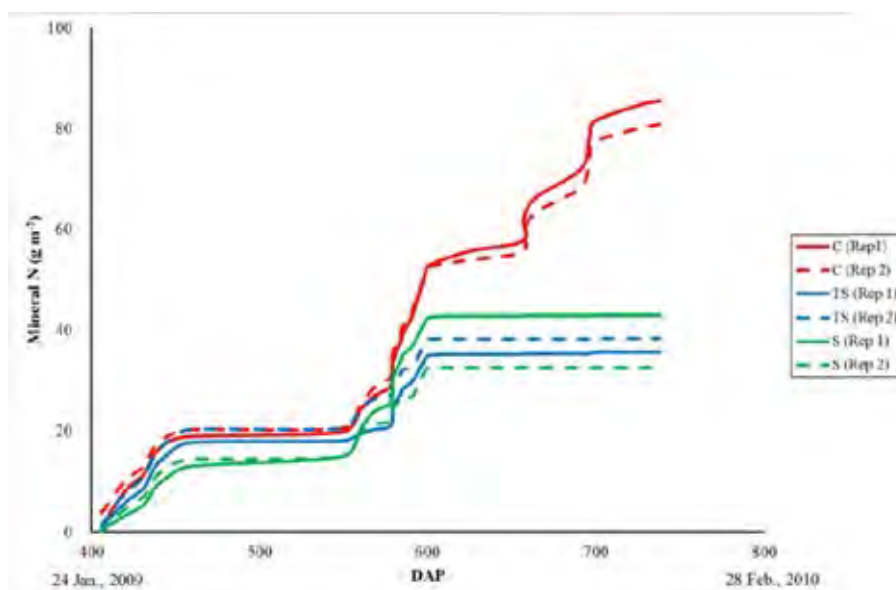


Fig. 3b. Accumulation of leached mineral N in 2009

C: control; TS: triticale-sugarcane; S: sugarcane; OAP: days after planting; Rep: replicate

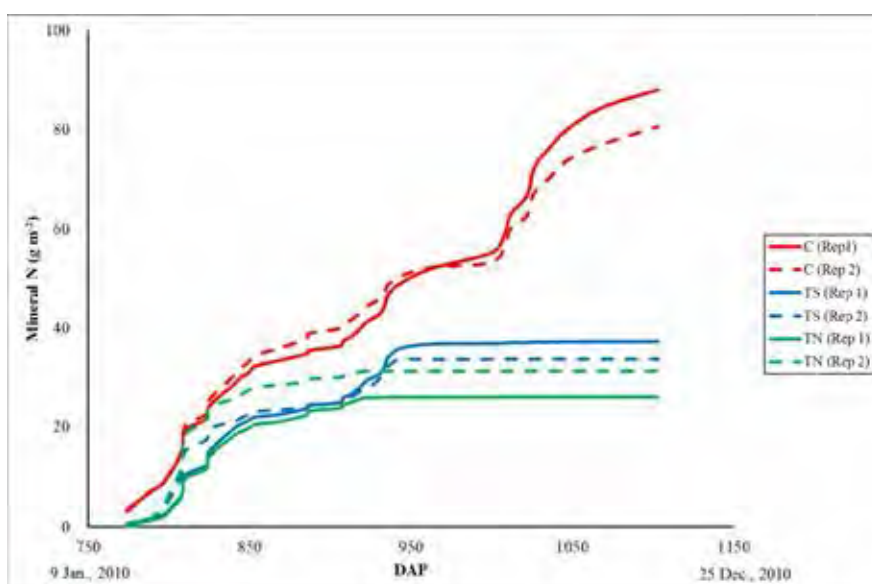


Fig. 3c. Accumulation of leached mineral N in 2010

C: control; TS: triticale-sugarcane; TN: triticale-napier grass; OAP: days after planting; Rep: replicate

Table 5. Drained water and leached mineral N

Year	Crop	Drained water (mm·year ⁻¹)	Leached mineral N (g·m ⁻² ·year ⁻¹)
2009		446a	52.7
2010		663b	50.3
	Control (C)	790a	83.8a
	Summer (S)	465b	36.6b
	Winter-Summer (TS and TN)	408b	34.2b
P value			
	Year	.001	.458
	Crop	< .001	< .001

C: control; S: sugarcane; TS: triticale-sugarcane; TN: triticale-napier grass

3.3 Growth, Yield and N Content of Crops

Height, above-ground dry matter weight and above-ground N yield of planted crops as well as weeds are presented in Table 6. Major weeds observed in control (C) and sugarcane plots (S) in 2008 were common lamb s-quarters (*Chenopodium album* L. var. *album*), henbit (*Lamium amplexicaule* L.), Japanese dock (*Rumex japonicas* Houtt.), water foxtail (*Alopecurus aequalis* Sobol. var. *amurensis* (Komar.) Ohwi) and field horsetail (*Equisetum arvense* L.). In 2010, napier grass suffered from drought typical to this area during summer resulting in leaf senescence. The combination of triticale and napier grass, however, recovered the greatest N in 2010. Although nitrate-N concentration of both sugarcane and napier grass did not exceed the critical level of 0.2 % for feed at dry matter basis, the values in 2010 was relatively higher than those in other years (data not shown).

3.4 N Content of Soils

For the original soil contained in the lysimeter and soils after the experiment, pH, C, Total N, nitrate-N and ammonium-N were presented (Table 7). The original soil was sampled in 2010 from the hill where the soil had been taken to fill the lysimeter in 2007. Nitrate-N in every soil layer was lower for the plots planted with napier grass in the year 3 (S-S-TN) compared to control plots (C-C-C) and the combination of triticale-sugarcane plots (TS-TS-TS). As the sampling and the analysis of the original soil were carried out in the third year of the experiments, comparison of inflow and outflow of nitrogen in each lysimeter was not attempted.

3.5 Discussion

Planting sugarcane and napier grass was found effective in reducing the amount of drained water during summer (Figs. 1a, 1b and 1c). A hypothesis to arise is that water contained in the soil might have been reduced by evapotranspiration of the crop whether it was sugarcane or napier grass or even weeds, which would have provided soils with a higher capacity of holding water at events of rainfall.

Table 6. Height, aboveground DMW and above-ground N yield of the harvested crops

Year	Treatment	Height (cm)		Above-ground DMW (kg·m ⁻²)		Above-ground N Yield (g·m ⁻²)		Total	
		T	S/N	T	S/N	T	S/N		W
2008	C	-	-	-	-	2.25-10.05	-	24-152	24-152
	TS	86-96	290-323	0.69-0.87	3.09-3.55	-	34-36	30-36	64-72
	S	-	305-322	-	3.52-4.36	0.29-0.53	-	32-41	47-53
2009	C	-	-	-	-	-	-	-	0
	TS	88-121	266-281	0.78-1.68	3.05-3.52	0.10	22-33	32-38	63-65
	S	-	281-285	-	3.85-3.86	-	-	38-39	38-39
2010	C	-	-	-	-	-	-	-	0
	TS	46-48	281-318	0.41-0.65*	3.62-4.35	-	13-23*	40	53-63
	TN	48-49	292-315	0.62-0.63*	4.91-5.38	-	18-23*	39-49	56-72

Results are presented as a range of two replicates

Table 7. pH, C, total N, nitrate-N and ammonium-N in the original soil and the soils after the experiment

Crop Sequence	Depth (cm)	pH	C (%)	Total N (%)	nitrate-N (mg·100g ⁻¹)	ammonium-N (mg·100g ⁻¹)
C-C-C		6.1a	2.7a	0.17	4.23a	0.55
TS-TS-TS		6.4b	3.0ab	0.19	3.23a	0.58
S-S-TN		6.5b	3.1b	0.19	1.36b	0.37
	0-25	6.2a	3.3a	0.21a	3.21	0.48
	25-50	6.4b	2.7b	0.18b	2.62	0.52
	50-75	6.4ab	2.7b	0.17b	3.00	0.50
P value						
Crop Sequence (CS)		.003	.016	.053	.002	.063
Depth (D)		.035	.003	.005	.556	.899

Y: year; C: control; T: triticale; S: sugarcane; N: napier grass † not included in the statistical analysis
Means with the same letter within each component (Crop Sequence and Depth) are not significantly different

1500 to 2500 mm of water has been reported to be required by sugarcane during its growth period [44], amounts greater than that of the rainfall observed in the present study. Although there are a number of studies that have looked at evapo-transpiration of various crops including sugarcane [45-46], many of them were conducted to gain insight of water requirements of target crops for management of irrigation in semi-arid climates [47-48]. Efforts of reducing leaching losses of fertilizers can be seen in drought-prone areas as well. For areas of intensive cereal production in northern China, Islam et al. [49] proposed a use of superabsorbent polymer as soil amendment to reduce leaching losses.

As to 'cleaning' aspects of crops/plants, a number of studies can be found which have attempted to utilize plants to treat wastewaters [50-51] of especially municipal origin [52-53]. Bialowiec et al. [54], in a lysimeter experiment testing effectiveness of willow to treat polluted solutions, observed evapotranspiration of lysimeters planted with willow 3-14 times higher than evaporation of bare soil, which probably could also explain the observation of almost ceased drainage from the lysimeters planted with sugarcane and napier grass in the present study. Singh et al. [55] was unique in suggesting a system of treating waste waters by utilizing the transpiring ability of bamboo (*Dendrocalamus strictus*) characterized with high evapotranspiration rate. In the present study, it took approximately 3 months until the preventing effects of sugarcane on leaching started being observed probably due to its slow growth during early phase. Weeds showed a great nitrogen recovery in one of the two replicates (Table 6). However, constant effects are hard to expect from weeds where N recovery would vary greatly according to the type of weeds that emerge. Besides, leaving weeds uncontrolled would result in an expansion of seed banks in the soil, which would make it difficult to grow crops in following years to come.

In temperate regions, N leaching during winter has been well recognized and preventative measures such as planting catch crops have been practiced [23]. C3 cereal crops could take up a large quantity of N in suitable climates [56]. In the present study, triticale recovered a great amount of N comparable to that of sugarcane in 2008 and 2009. Triticale had a variable crop stand and its biomass yield was probably overestimated to some extent by limited sampling areas. The contribution of the crop both to the decreased water drainage and N leaching, however, was hard to recognize in 2009. In 2010, amounts of drained water and

leached N appeared to have been reduced for the plots planted with triticale compared to control plots. The amount of rainfall in March and April in 2009 was approximately half of that in 2010 and there was little drainage of water in 2009 from any lysimeter. Triticale is therefore considered to have functioned as an effective cleaning crop in reducing N leaching, though the effects were smaller than those of sugarcane and napier grass.

Concentration of total N in soils did not appear to have been affected by the presence of any crop tested in the present study. A possibility that N leaching occurred not only in mineral forms but also in organic forms in the drained water could not be excluded [57], however, the fact that drained water was reduced to the level of near zero exhibited that planting cleaning crops was effective in preventing N leaching. Prevention of leaching by transpiration, the major finding of the present study, was effective at least partially for the events of severe rainfall in a short period of time (Table 4). Amount of annual rainfall observed in the studied area was less than 1000 mm, approximately two thirds of the average rainfall in the country. A further experiment is therefore required to study if transpiration of sugarcane/napiergrass would prevent N leaching in the areas of higher rainfall. As this study was carried out on lysimeters, containers where root growth is unnaturally restricted, a careful consideration is required in interpreting the results in the context of actual agricultural practices.

Looking at nitrogen recovery, aboveground part of sugarcane and napier grass contained comparable amounts of nitrogen, while concentration of mineral nitrogen contained in the drained water as well as nitrate left in the soil after harvest significantly differed for two crops. Despite that this was the observation made only in a single year, it gives us an impression that sugarcane and napier grass might have different mechanisms in acquiring nitrogen. Possibilities of nitrogen fixation by diazotrophs have been suggested for sugarcane by a number of researchers [58-60]. If this was the case, ability of sugarcane as a cleaning crop might need be downgraded.

Leaving out nitrogen fixation issue with sugarcane, napier grass is still considered to excel sugarcane in taking up nitrogen from soils under conditions of high fertilization. This is based on the observation made in our previous study [39] where field experiments of high fertilization were conducted in two years with sugarcane and napier grass. In the experiments, we observed nitrogen recovery of

napier grass more than twice that of sugarcane for the plots applied with the N rate of 60 g m⁻², while difference was much smaller between two crops when the N rate was 30 g m⁻² implying that sugarcane and napier grass have different capacity in taking up nitrogen. This might be related to another observation we had made in the previous study that sugarcane showed a tendency of accumulating less nitrate compared to napier grass when fertilized with high nitrogen. In the present study, neither sugarcane nor napier grass accumulated nitrate exceeding the critical level of 0.2% at dry matter basis for feed use.

From the above, sugarcane might have looked less competent as a cleaning crop compared to napier grass. This would not be necessary so, if usage of the harvested crop was taken into consideration. Harvested crops could be used for feed in the case of sugarcane where one has less worries about the accumulation of nitrate-N, although this does not exemplify concerns for possible accumulation of other nutrients such as potassium. Sugarcane probably would not be able to clean fields of over fertilization very quickly; however, it could reduce nitrate leaching substantially by evapotranspiration also giving higher chances for growers to utilize harvested crops. Napier grass is capable of reducing nitrate leaching by evapotranspiration as well. In addition, it would be quicker in cleaning up the target fields. On the other hand, it was more susceptible to drought compared to sugarcane and utilization of harvested crop would be considered more difficult. If it happens that undesirable levels or types of nutrients are contained, alternative use needs to be sought for. Biomass use is a possible option [61-62] especially when methods of treating cellulose rich materials have been studied intensively [63-64].

Although this study was originally commenced supposing situations where cleaning crops were expected to treat crop lands applied with over-dosed fertilizers including manure in agricultural areas of mostly vegetable and livestock production, recent upsurge of plant factories in the country based on hydroponics and light emitting diode (LED) makes us ponder a possibility that they might require some types of cleaning crops to treat wastewaters [65] in the future.

4. CONCLUSION

Sugarcane and napier grass were found to be effective in reducing the amount of N leaching from lysimeters overdosed with high rates of manure application. The

effects were appeared to be chiefly brought about by the reduced drainage water from lysimeters planted with these crops compared to those left as bare soil. This implies that effects of a 'cleaning crop' could be evaluated not only from its ability of taking up N but also from that of minimizing drainage water at the time of rainfalls.

CONSENT

Not applicable.

ETHICAL APPROVAL

Not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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A. Gbabo, Atshusi Koyama and Furuishi Shingo,
*Agricultural Engineering Department,
National Cereals Research Institute, Badeggi, Nigeria,
(NCRI), Nigeria,
Japan International Corporation Agency (JICA), Japan*

Performance Study of Modified Rice Parboiler

1. INTRODUCTION

Rice parboiling is a hydrothermal process which entails heat treatment to gelatinize the starch in rice kernel resulting in irreversible swelling and fusion of starch granules [1]. During this process, the starch changes from crystalline form to amorphous one. As a result of this transformation, the orderly polyhedral structure of the compound starch granules changes into a coherent mass [2].

It has been reported that parboiling of paddy requires three steps: soaking, steaming and drying. In the soaking process, the void spaces in the hull and rice kernel are filled with water, hence the starch granules absorb water and swells which causes an increase in the volume of the paddy [3] while during steaming, the starch in the rice kernel is gelatinized as a result of exposure of the soaked paddy to steam heat. Subsequently, the paddy is dried and tempered to 13-14% moisture content to impart hardness into the grains in order to withstand the pressures during milling.

Rice was consumed occasionally on Sundays and festive periods before 1970 but has become a staple food in many households in Nigeria [4]. The country consumes about 5 million metric tons of rice annually, of which over 35% is imported [5]. In order to satisfy the domestic consumption rate, government embarked on implementation of several agricultural programmes to boost production. However, locally processed rice acceptability in the market is still below expectation because of inadequate processing methods adopted by milled rice producers. Inappropriate rice parboiling methods used by local processors has been identified as one of the causes of low quality milled rice produced in the country. In order to solve this problem, the engineering department of the National Cereals Research Institute, Badeggi designed and developed a rice par-boiler. After several years of usage, it became necessary to modify the steaming system because the old model had problem of long steaming time of over 1 hour 45 minutes for 500 kg batch of rice

which usually cause production of uneven parboiling and dark yellow coloured rice which is unacceptable by some consumers. A team of scientists and engineers from the NCRI, JICA, DESFABENG CO. LTD and FMARD modified the par-boiler and achieved a steaming period of about 45 minutes for the same quantity of rice with the production of amber yellow coloured rice preferred by consumers. Thus, this is a presentation of the wok that was carried out.

2. MATERIALS AND METHODS

2.1 Description of Parboiling System

The old model parboiling system (Plate 1) is made up of the boiler and soaking/steaming sections. The boiler is a cylindrical vessel constructed with 3 mm thick mild steel sheet. It is raised above the ground level to a height of 75 cm with angle irons and enveloped with double bricks walls to form the firing area. A pressure relief system is incorporated at the top as a safety device in addition to a drain valve and steaming level indicator.

The soaking and steaming unit is a 75 cm high rectangular tank with cover made with 2 mm thick galvanised sheet and raised 15 cm above the ground level. It has removable false bottom made with angle iron and screen raised 15 cm above the ground to allow steam to circulate. A steam distribution system made from perforated rectangular pipes is incorporated below the false bottom to spread steam evenly throughout the tank. A drain valve at the bottom of the tank provides drainage for soak water and the condensate.

The boiler and soaking/steaming units are interconnected with pipe network carrying valves to convey water and steam for soaking and steaming operations respectively.

2.2 The Modified System

Modification was only made on the steaming section. As shown in Plate 2, a second set of steam distribution pipes was incorporated half way the height of the soaking/steaming tank such that they are alternately fixed to the ones installed at the bottom of the tank in order for steam to be distributed evenly. Also, another removable false bottom is placed on the steam distribution pipes to prevent rice from getting into the perforations of the pipes.



Plate 1. Old model parboiling system



Plate 2. Modified system

2.3 Experimental Procedure

18,000 kg of rice, Faro 52 were obtained from NCRI rice store and divided into two (2) portions of 9,000 kg each. Each of the portions was heat treated in three batches of 1000 kg per batch in the modified and the old systems.

The 1,000 kg samples were cleaned with both Pneumatic cleaner and wet cleaning systems and soaked with hot water from the boiler under the same

condition of temperature, 70°C and duration of 8 hours as an acceptable and recommended standard [4]. The samples were steamed until more than 98% of the paddy hulls cracked. This was done in batches in each of the parboiling systems in three replications. The time taken for each sample to be steamed was noted. They were shed dried on clean concrete platform in kernel layer at an average temperature of 28°C for 24 hours and tempered further for 12 hours. The samples were milled with NCRI model rice mill developed at the National Cereals Research Institute in collaboration with the DESFABENG CO. Ltd., and the following analyses were carried out:

2.3.1 Total milling yield

This is the total quantity of rice that was milled. Each of the milled samples was weighed and expressed as percentage relative to the quantity of dried rice before milling:

$$\text{Percent total milling yield} = \frac{\text{Mass of Milled rice}}{\text{Mass of dried rice before milling}} \times 100 \quad (1)$$

2.3.2 Head rice yield and Percent broken grains

The head rice yield is the ratio of the quantity of whole milled rice (retaining more than % of the total whole grain) to the total quantity of the milled rice while the Percent broken grains is the ratio of the quantity of the broken grains to the total quantity of milled rice.

The total milled rice is separated into whole and broken grains in two passes with a sieve SH1-400-0807 having 2.8 mm holes diameter [6]. This sieve allows passage of less than % broken grains. The whole and broken grains were weighed with precision balance BC 340. The percent head rice and broken grains were computed as follows:

$$\text{a) Head rice yield} = \frac{\text{Mass of whole grain}}{\text{Total mass of milled rice}} \times 100 \% \quad (2)$$

$$\text{b) Percent broken grains} = \frac{\text{Mass of broken grains}}{\text{Total mass of milled rice}} \times 100\% \quad (3)$$

2.3.3 Colour

The colour of the rice samples were evaluated by placing 1 g of rice on the Hunter lab colorimeter. The colour difference meter in the equipment was used to read the colours of the samples.

2.3.4 Swelling capacity

Three hundred and fifty millilitres (350 ml) of water was heated to 100⁰ C in a 650 ml capacity graduated cylinder. Twenty five grams (25 g) of sample was lowered into the cylinder and covered. It was cooked on rectangular hot plate, HPS-460 for intervals of 10 mins, 20 mins, 30 mins and 40 mins. The decrease in volume, which is the amount of water absorbed indicates the swelling capacity of the rice samples [7].

2.3.5 Pastiness

The pastiness of the rice samples was determined with the Brabender Visco/Amilogragh equipment [8]. Each of the milled samples was ground to flour and the moisture content determined using the rapid oven dried method. Two grams (2 g) of the rice flour sample was weighed into aluminium dish and heated in oven at 135°C for 1 hour. The dish was then transferred into a desecrator and allowed to cool to room temperature overnight before weighing and the moisture content determined:

$$\text{M.C \% (wet basis)} = \frac{\text{Initial weight of sample} - \text{Weight of dried sample}}{\text{Initial weight of sample}} \times 100\% \quad (4)$$

The equivalent dry weight of the sample using 8% paste level and 450 g paste concentration was determined [9].

$$\text{Dry Weight} = \frac{0.08 \times 450}{1 - \text{Moisture of Sample (wet basis)}} \quad (5)$$

The corresponding dry weight (ranging from 37.1 g – 38.48 g) was dispersed in 450 ml of water for 1.5 mins and transferred into the amylograph bowl. The solution was heated from 30°C to 95°C at 1.5°C/min for 30 mins. The peak viscosity on heating from 50°C to 95°C was recorded in brabender units (BU).

Breakdown viscosity, setback viscosity and consistency of the samples were calculated according to the method adopted by [7]:

- a) Breakdown viscosity = Peak viscosity - Final viscosity on cooking at 95°C;
- b) Setback viscosity = Viscosity when cooled to 50°C – Peak viscosity;
- c) Consistency = Viscosity when cooled to 50°C – Final cooking viscosity at 95°C.

3. RESULTS AND DISCUSSION

The results of the analysis carried out on the rice samples are shown on Table 1 and discussed as follows:

Table 1. Comparison of parboiling parameters of the old and new parboiling system

Performance parameters	Old parboiling systems				Improved parboiling system			
	1	2	3	Average	1	2	3	Average
Steaming duration (mins)	105	100	107	104	45	48	43	45.7
Total milling yield(%)	69.5	71.2	68.8	70.0	70.0	69.5	71.1	70.2
Head rice yield (%)	98.0	96.8	98.2	97.7	96.5	97.2	98.0	97.2
Broken grains (%)	1.7	2.9	1.6	2.1	2.3	2.4	1.5	2.1
Colour (DE)	9.5	9.3	8.8	9.2	5.5	5.1	4.9	5.1
Swelling capacity (ml)	176	182.5	189.2	182.6	165	156.9	168.0	163.3
Pastiness:								
Peak viscosity	18.2	19.0	19.5	18.9	10.2	19.6	17.0	18.6
Final viscosity at 95°C	42.6	41.7	42.3	42.2	41.5	40.2	42.2	41.3
Viscosity on cooling to 50°C	65.0	63.7	62.9	63.9	63.0	62.5	64.0	63.2
Breakdown viscosity	24.4	22.7	22.8	23.3	22.3	20.6	24.2	22.4
Setback viscosity	47.0	43.7	42.4	44.4	21.5	22.3	21.8	21.8
Consistency	22.4	22.0	20.6	21.7	21.5	23.3	22.8	22.5

3.1 Steaming Duration

The duration taken by the modified system to complete the steaming process was observed to be 45 mins which is about half of the duration (104 mins) taken by the old one. This is because the vertical distance covered by the movement of the steam was shortened by the introduction of the additional set of steam distribution pipes half way along the height of the steaming tank. This indicates that more time is saved in carrying out the parboiling operation for the modified system.

3.2 Total Milling Yield, Head Rice Yield and Percent Broken Grains

The values for total milling yield, head rice yield and broken grains were almost the same for the modified system and the old one. Total milling yield for the old system was observed to be 69.8%, and 70.2% for the modified version. Correspondingly, the head rice yields for both systems were appreciably high (98.0% for the old and 97.0% for the modified one). Percent broken grains were also low for the two systems as both systems recorded 2.1%.

3.3 Colour

The colour difference, DE5.1 of the rice steamed with the modified system was amber yellow which is less than those produced from the old one with colour difference, DE9.2 (deep yellow). The amber yellow coloured rice produced with the improved system has been reported to be more accepted by consumers compared to the rice with dark yellow colour [10].

The dark coloured rice obtained with the old system was due to the longer duration taken for the steam to travel vertically from the bottom to the top of the steaming tank due to the incorporation of a single set of steam distribution pipe-network. This observation conforms with a report whereby the relatively high level of reducing sugars and amino acids in parboiled rice in addition to the combined effect of longer heat treatment duration were found to be responsible for parboiled rice discolouration [11,12,13]. Conversely, the distance (vertical height) the steam travelled to completely parboil the rice was shortened by half due to the incorporation of the second set of steam distribution pipe-network halfway along the height of the steaming tank. As a result, the steaming duration was shorter, hence producing the bright amber yellow coloured rice.

3.4 Swelling Capacity

The swelling capacity, 163.3 ml of the rice obtained with the improved parboiling system was slightly less than the old model (182.6 ml). This shows that it takes shorter time to cook the rice produced with the improved system compared with those from the old one. This observation conforms to an investigation carried out by [14] where parboiled rice that was exposed to severe steaming for longer times took more time to cook.

3.5 Pastiness

Pastiness indices (peak viscosity, final viscosity on cooking at 95°C, viscosity on cooling to 50°C, breakdown viscosity, and consistency) of the sample were almost the same for both the improved and old systems except for setback viscosity where the value, 44.4 BU for the old system is higher than those obtained with the improved system (21.9 BU).

4. CONCLUSION

The conclusions arising from this study are summarised as follows:

i) The steaming duration during the parboiling process was highly affected by the modification that was carried out on the old system. The second set of steam distribution pipe that was incorporated to the steaming tank reduced by less than half the time taken for the steam to flow through the vertical height of the tank. A saving in time of about 60 mins was recorded with the improved system as it took only 45 mins to completely gelatinize the starch in the kernels while the old one used 104 mins.

ii) The total milling yield, head rice yield and percent broken grains were not significantly affected by the modification as both the old and modified systems recorded almost the same values.

iii) The colours of the rice parboiled with the two systems at the same conditions differed from one another. The colour difference, DE9.2 obtained from the rice parboiled with the old system which was dark yellow in colour compared with those obtained from the modified system having amber yellow colour.

iv) The swelling capacity represented by the water absorption rate of the rice samples were slightly affected by the modification made on the parboiling system. The rice produced with the modified system had less water absorption rate (163.3 ml) compared with the old system which had 182.6 ml. This indicates that the rice processed with the modified system will take comparatively less time to cook.

v) All the viscosity values: peak viscosity, final viscosity at 95°C, viscosity on cooling at 50°C, breakdown viscosity and consistency were almost similar. This shows that the rice obtained with the improved system still retained the desirable pastiness qualities required in parboiled rice.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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**Priscila Gonzales Figueiredo, Silvio José Bicudo,
Manoel Isidoro Valdivié Navarro,
Luis Marino Mora Castelanos and Bárbara Rodríguez Sánchez,**
*Department of Crop Science, College of Agricultural Sciences,
Universidade Estadual, Botucatu, SP. Brazil,
Institute of Animal Science, Mayabeque, San José de las Lajas, Cuba*

Consumption Diagnosis of Sweet Cassava in Three Municipalities in Cuba

1. INTRODUCTION

The consumption of cassava in Cuba is a tradition inherited from the islanders who lived there before its colonization by Spain. In that country, cassava is known as *vianda*, a generic name given to the roots, fruits and tubers that can be boiled, fried and even cooked as stews, soups and sweets [1,2].

Cassava is currently considered an important source of energy for human food and animal feed in tropical and in developing countries, where their use has increased considerably, whether fresh, processed or industrialized [3]. However, each region or country has a certain nutritional profile that is strongly associated with their cultural, nutritional, socio-economic and demographic aspects [4].

According to [5], there is little or no information that identifies localized preferences and frequencies of consumption of cassava as well as the factors that determine such parameters. Investigative results of such issue partially characterize the nutritional profile of a population and serve as a reference to plant breeding programmes, contributing to increase local food security [4,7].

Thus, this paper characterizes the preferences and frequency of consumption of cassava in the municipalities of Plaza de la Revolución - La Habana province, El Salvador – Guantnamo province and San José de Las Lajas – Mayabeque province in Cuba.

2. MATERIALS AND METHODS

The preparation of the survey questionnaire was preceded by a gathering of information on the subject through pre interviews with individuals belonging to the universe of the study. The research was thus conducted in two stages. The first one consisted of the preparation of the questionnaire from the information previously obtained in the pre interviews and the second one consisted of the administration and evaluation of the questionnaire.

After drawing up the questionnaire, the sample size that would be surveyed was determined based on the population of the municipalities [7] of Plaza de la Revolución (227) - Havana province, San José de Las Lajas (226) - Mayabeque province and El Salvador (226) -province of Guantanamo, in Cuba. Sample size was determined using probability sampling method based on the equation given below:

$$n = \frac{Nt^2 pq}{d^2 N + t^2 pq},$$

N = population number of Plaza de la Revolución, San José de las Lajas and El Salvador (152,318; 73,939; 45,305),

t = t value for confidence interval (for 95% confidence interval),

t = (1.96),

p = existed probability (0.5),

q = non-existed probability (0.5),

d = error rate (0.065).

The questionnaire was administered to men and women (40 and 60%) respectively, between twenty and sixty years old, with at least high school graduates (eleven years of literacy), strictly limited to residents of urban areas of each municipality.

After determining the sample size the study was conducted by applying individual questionnaire with 12 closed questions and two open ones. Subsequently, the data were statistically analyzed by calculating the relative and absolute frequencies of each question.

3. RESULTS

In the urban area of the municipalities under study, cassava is mainly obtained by purchase, however cultivation is more representative in El Salvador. Since about 90% of respondents are unaware of the variety of cassava cultivated or consumed (Table 1), knowledge of the variety does not determine the preference of consumers at the moment of purchase or choice the cassava branches to plant.

Table 1. Percentage distribution of respondents about cassava consumption way in three urban municipalities in Cuba

	Plaza de la Revolución %	El Salvador %	San José de las Lajas %
Cassava acquisition way			
Buy	89	73	87
Cultivate	9	21	13
Buy and cultivate	2	6	0
Awareness of cassava variety			
Yes	5	10	7
No	95	90	93
Decision criteria for obtaining cassava			
Pulp colour	11	10	6
Skin colour	57	62	3
Empirical knowledge	26	16	77
Other	6	12	14
Most consumed cassava pulp colour			
White	99	97	98
Yellow	1	3	2

The choice of cassava at the moment of purchase or cultivation is determined either by the morphological criteria of pulp colour and the skin colour or by an empirical knowledge about the ease of cooking. In Plaza de la Revolución and El Salvador, the skin colour is the main criterion when choosing the root, followed by empirical knowledge about the ease of cooking. White pulp cassava is the most consumed variety in the three municipalities.

According to the survey results, the market supply is the main factor that determines the frequency of consumption. When a supply exists cassava is consumed 1 or 2 times a week in Plaza de la Revolución and San José de las Lajas and 1 to 4 times per week in El Salvador (Table 2). The price is not a determining choice factor at the moment of cassava purchase or consumption, given that it was the one the least chosen by respondents in all municipalities.

Table 2. Frequency and criteria that determine cassava consumption frequency in three urban municipalities in Cuba

	Plaza de la Revolución %	El Salvador %	San José de las Lajas %
Weekly frequency of cassava consumption			
0	1	3	1
1 to 2	77	46	82
3 to 4	15	47	13
5 to 7	7	4	4
The frequency of cassava consumption is determined by			
Market supply	71	85	63
Cost	1	3	8
Prefers other	20	2	14
Other	8	10	15
Is there any difference during cassava cooking			
Yes	59	84	85
No	41	16	15
Kinds of differences that occur during cassava cooking			
Taste	3	4	1
Texture	21	16	19
Pulp colour	49	30	7
Other	27	50	73

When asked about the occurrence of changes in the qualitative characteristics such as taste, texture, pulp colour or the occurrence of more than one of these items, during and/or after cooking, the pulp colour was the most cited by citizens of Plaza de la Revolución and San José de las Lajas, followed by the change of more than one factor in the three municipalities. About 90% of the answers "others - more than one factor" were associated with changes in texture and pulp colour.

In Cuba, the most common form of cassava consumption are boiled or fried. Cassava is usually purchased in small quantities, for short-term storage or immediate use. About 50% Plaza de la Revolución citizens are able to storage cassava in the refrigerator and the other 50% keep the roots in a natural, without post-harvest treatment or protection. A small group of people whose cultivate cassava in the backyard keep the roots in the ground. The option "other" represents the group of people whose chosed the options "frozen" and "storage in the natural ambient" (Table 3).

In most cases the use of cassava residues are discarded as domestic waste, mainly in the municipalities of Plaza de la Revolución and El Salvador. In San José de las Lajas almost 60% of respondents declared to use them as animal feed.

Table 3. Consumption, strategies to prevent post-harvest deterioration of roots and utilization of cassava residues (skin and bark) in three urban municipalities in Cuba

	Plaza de la Revolución	El Salvador	San José de las Lajas
	%	%	%
The most common way to consume			
Cooked	51	42	72
Fried	1	3	1
Cooked and fried	45	53	27
As flour	3	1	0
Strategies to prevent post harvest deterioration of cassava			
Frozen peeled	44	42	81
Buried	2	2	8
In natura	50	19	5
Other	4	37	6
Disposal of cassava bark			
Discarded as waste	76	70	42
Animal feeding	21	12	53
Organic fertilizer	0	4	3
Other	3	14	2
Knowledge about cassava industrial processes			
Yes	3	12	7
No	97	88	93

When asked about the knowledge of cassava processing and industrialization, approximately 90% of respondents in the three counties, declared to ignore these types of processing. Those who answered "yes" mentioned the production of starch and cassava yogurt, used in animal feed.

Finally, respondents were asked about the use of cassava as a main ingredient in dishes of Cuban cuisine. In Plaza de la Revolución and San José de las Lajas, it was stated that cassava is present in all Cuban dishes as vianda as well as in caldosas, atol and frituras, while in El Salvador, the cazabe was mentioned.

4. DISCUSSION

Given the lack of space in urban areas and the ease of purchase, the most common way of obtaining cassava in urban areas in Cuba is purchase in agricultural markets. Although El Salvador is an urban region, the province of Guantanamo in Cuba is known as a rural region, ie, does not have the same development and life rhythm of the urban areas of the provinces of La Habana and Mayabeque. Cassava production scale is in the range of what respondents named the “backyard farming”, ie, production just for family consumption without surpluses for sale.

Another factor that makes purchasing the most common form of achievement is that the price does not limit the cassava acquisition by purchasing (maximum 8%). In addition to that, when houses have outside spaces people preferably used the space to develop backyard livestock, in order to produce mainly chicken and pork, as can be seen by comparing the percentage of those that cultivate cassava (Table 1) and those whom use the cassava residues as animal feed (Table 3).

The morphological traits as pulp and skin colour are the factors that determine the choice of cassava and can be explained by the characteristics of cassava varieties that are cultivated in Cuba. According to data provided by (Instituto de Investigaciones de Viandas Tropicales, local handout) Cuban cassava germplasm bank are composed with varieties which have light pink (32%) and cream (30%) bark colour, white pulp (82%), and only 5% of the accesses have high content of hydrocyanic acid or are bitter cassava.

Thus the most cultivated cassava varieties are those with white pulp, light brown skin and light pink bark, and are represented by the follow varieties: CMC-40, INIVIT Y 93-4, CEMSA74-725, CEMSA74-6329 and Señorita. Varieties as Selección Holguin, Enana Rosada and Jagüey Dulce are grown primarily in the eastern regions of the country, where are the province of Guantanamo (Instituto de Investigaciones de Viandas Tropicales, local handout).

The frequency of consumption determined by market supply, is related to the supply of roots that cook easily and have fast softening. In Cuba there is supply of cassava throughout the year, however cassava which are those characteristics and with a texture pleasant to the consumer are available only from September to December.

The changes in texture and pulp colour after cooking identified by respondents can be determined by factors such as genotype, interaction between genotype and environment, age or stress endured by the plant throughout its life cycle, which can promote an increase in fiber content, reduction in dry matter content and change in chemical and physical composition of starch granules [8,9,10,11].

According to [12,13], in Cuba the cultivation of varieties not adapted to certain localities is explained by the fact that peasants act as key players in the

management of plant genetic resource, i.e., preservation, production, selection and exchange of local improved propagation material due, among other factors, the peasants' limitation of access to improved materials adapted to each region.

In order to control or improve the quality of cassava produced, [2,6] reported the development of participatory plant breeding projects to establish an improvement strategy, through the stimulation of the selection, conservation, multiplication and seed exchange capabilities of farmers with different socioeconomic conditions and levels of varietal diversity on their farms.

The change of the colour of cassava pulp at cooking time is determined by the total or partial gelatinization of the starch, which may be related to chemical composition as well as to the presence of physical barriers (cell wall) that prevent the entrance of water in cells at the moment of cooking [14,15].

Cassava is a highly perishable food and so it is seldom acquired in large quantities, i.e., consumers typically purchases a small amount to be used in no more than a week. Processing or manufacturing of cassava for human consumption is rare or nonexistent in Cuba, boiled cassava have being the most significant way of consumption and accompany any dish in daily meals.

Those who know some cassava industrialization processes cited the starch used for ironing clothes or cassava yogurt for animal feed. The flour used in Cuba is a whole flour (pulp+bark dried and mashed).

Cassava is the main ingredient of the follow Cuban dishes *yuca con mojo*, dish made by marinading cassava in garlic, lime, and olive oil, *caldosa* or *sopón cubano*, a soup with meat, vegetables and cassava, *atol*, sort of porridge of milk thickened with the starch removed from the mashed cassava, *frituras*, fried cassava, and the *cazabe* that has the shape of a thin-crust pizza dough made with raw mashed cassava, and roasted.

5. CONCLUSION

The acquisition of cassava in the municipalities of Plaza de la Revolución, El Salvador and San José de las Lajas in Cuba is done by purchase small quantities of fresh cassava for home consumption within one week, due to the extreme perishability of cassava, which limits consumers' ability to store fresh roots at home.

The choice of cassava is made based on both skin colour (light brown) and pulp (white) and empirical knowledge about its ease of cooking.

Cassava is mostly consumed in boiled and fried forms up to four times a week in times where there is root market supply with the desirable culinary characteristics (cooking facility), that is, from September to December.

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Satyajit Ghosh and Ioannis N. Kallianiotis,
*Economics/Finance Department, The Arthur J. Kania School
of Management, University of Scranton, Scranton, USA*

Current Account and Exchange Rate Dynamics in Presence of Risk and Economic Shocks

1. INTRODUCTION

The recent oil shocks,¹ the huge debts,² the financial crisis,³ and the deep recession,⁴ created an enormous mistrust for the international financial system, a big disturbance to the real sector of the economy, and an uncertain future for the entire world. For an oil importing country a rise in the price of oil leads to currency depreciation (direct effect), which causes an increase in the value of imports and an improvement in exports. The high income of oil exporting countries is going to be spent on purchases of goods or assets from the country with the devaluated currency and its currency will appreciate (indirect effect). Thus, if the value of imported oil (capital outflow) is equal to the value of foreign investment (capital inflow) by the oil producers, the currency must stay unchanged. The elasticity of demand for importing oil is inelastic and the value of imports is large; but, the elasticity of demand for investment is relatively elastic, due to diversification and competition among financial assets issued by different countries, so the value of capital inflow will be less than outflow. In this case the currency of the oil importing country will depreciate.

¹ It reached \$143.67 per barrel on June 30, 2008. Now, the oil price is \$96.16.

² The U.S. national debt was \$16.028.

³ The DJIA from 14,164.53 (October 9, 2007) fell to 6,547.05 (March 9, 2009); an enormous decline by -7,617.48 points or -53.78%, a loss of \$18 trillion. Now (3/12/2013), its nominal value has surpassed the 2007 level, it is 14,447.29, but the real (inflation-adjusted) level is where it was in 1999. (The Wall Street Journal, March 6 and 12, 2013).

⁴ The real GDP fell drastically in 2008:Q4 (g_y -6.78%) and the unemployment rate became a double digit in October 2009 (u -10.1%). Lately, the g_y -2.2% for 2012 (and for the 4th quarter of 2012, it was -0.14%) and the unemployment rate was u -7.9% (January 2013).

Recently there have been numerous studies of the determinants and behavior of current account balance for both the advanced developed countries and the developing countries. See for example, [1], [2], [3], [4], [5], [6], and [7] among many others. Given increased globalization over the past twenty years it is not surprising that there is tremendous interest in studying current account balance. The behaviors of current account balance for most countries have also been sufficiently varied to warrant such renewed interest in current account balance, after the latest debt crises and the enormous unemployment.

Consider for example the current account balance for the United States. Fig. 1 shows the behavior of the U.S. current account balance since 1980. Starting from a zero current account deficit in 1980 within about twenty five years the current account deficit increased to \$800 billion. Over the last thirty years the current account deficit in the U.S. increased marginally during the recessions of 1982-83 and 2001. There was significant improvement in the current account balance during the recession of 1991-92 and in the first half of the recession of 2008-2009, while the second half of the 2008-2009 recession witnessed a worsening of the current account balance. The rise and fall of the current account deficit occurred over periods of increasing or stable oil prices, increasing uncertainty in global economic and political arena. Such diverse behavior of the current account balance is not limited to the United States. But, it implies that the behavior of the current account deficit in the United States and elsewhere cannot often be easily explained by traditional theories of the current account balance and that it needs to be constantly examined and reexamined.

The purpose of this paper is to analyze the determinants of the current account balance in the U.S. using a micro theory based intertemporal model of capital account balance and also to empirically examine the behavior of the spot dollar exchange rate. The structure of the paper is as follows. In section 2, we develop the intertemporal model of consumption and capital account balance and provide a graphical analysis of the effects of various economic shocks on the current account balance. In section 3, we estimate the U.S. current account balance using the data for 1999-2011. We also provide a related empirical estimation of the U.S. spot exchange rate using similar explanatory variables as

used in the current account balance estimation. Concluding remarks are made in section 4.

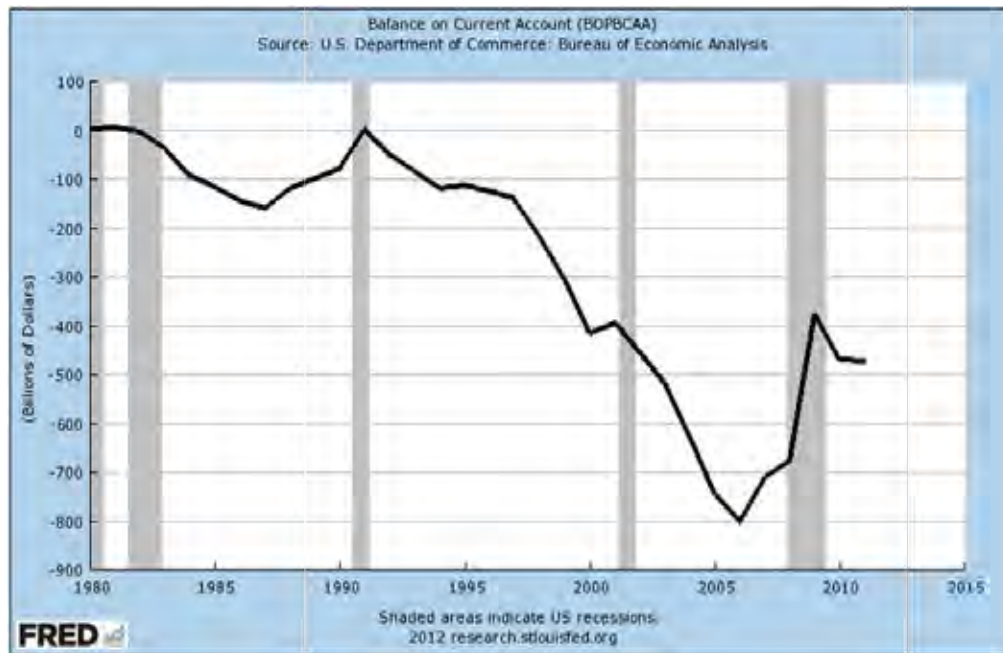


Fig. 1. U.S. Current account

Note: Current account = exports - imports (of goods and services).

Source: Federal Reserve Bank of St. Louis: Federal Reserve Economic Data (FRED)

2. CONSUMPTION AND CURRENT ACCOUNT BALANCE

In this section we develop a two period model of consumption and current account balance following [8]. The economy consists of identical consumers who live for two periods. Their preferences are characterized by a quasi concave utility function $U(C_1, C_2)$ where C_1 and C_2 are the levels of consumption in periods 1 and 2. The consumers maximize their utility subject to a lifetime resource constraint given by,

$$C_1 + \frac{C_2}{1+r} = R, \quad (1)$$

where R = Lifetime Wealth of households + Firms' Value + Value of oil, as follows,

$$R = W + V + N^D. \quad (2)$$

Let us consider each component of the resource constraint:

$$W = (w_1 L_1 - t_1) + \frac{(w_2 L_2 - t_2)}{1+r}, \quad (3)$$

where w_1, w_2 , are the wage rates, L_1 and L_2 are the levels of labor supply, t_1 and t_2 are the taxes in periods 1 and 2, and r is the underlying interest rate.

$$V = (Y_1 - I - w_1 L_1 - q_1 N_1) + \frac{(Y_2 - w_2 L_2 - q_2 N_2)}{1+r}, \quad (4)$$

where Y_1 and Y_2 are real GDP, I is real investments carried out by the firms, N_1, N_2 are the usage of oil and q_1 and q_2 are the world oil prices in periods 1 and 2. Finally,

$$N^D = q_1 N_1^D + \frac{q_2 N_2^D}{1+r}, \quad (5)$$

where N_1^D and N_2^D are the levels of domestic oil production in periods 1 and 2.

Note that governments taxes and expenditures are governed by the familiar intertemporal budget constraint for the government:

$$G_1 + \frac{G_2}{1+r} = T_1 + \frac{T_2}{1+r}. \quad (6)$$

Now, substituting (3) – (6) in (1) and collecting terms we get,

$$\begin{aligned} W + V + N^D &= (Y_1 - G_1 - I + q_1(N_1^D - N_1)) + \left(\frac{Y_2 - G_2 + q_2(N_2^D - N_2)}{1+r} \right) \\ &= Z_1 + \frac{Z_2}{1+r}, \end{aligned} \quad (7)$$

where

$$\begin{aligned} Z_1 &= Y_1 - G_1 - I + q_1(N_1^D - N_1), \\ Z_2 &= Y_2 - G_2 + q_2(N_2^D - N_2). \end{aligned} \quad (8)$$

Thus, the optimization problem of the consumers is given by:

$$\begin{aligned} &\text{Maximize} && U(C_1, C_2) \\ &\text{Subject to} && C_1 + \frac{C_2}{1+r} = Z_1 + \frac{Z_2}{1+r}. \end{aligned} \quad (9)$$

Now, (8) yields the fundamental characterization of the Current Account Balance (CAB).

Note,

$$\begin{aligned}
 Z_1 - C_1 &= (Y_1 - C_1 - G_1 - I_1) + q_1 (N_1^D - N_1) \\
 &= \text{Net exports of goods and services} \\
 &\quad + \text{Net export from oil} \\
 &= \text{CAB}_1
 \end{aligned}
 \tag{10}$$

But, by virtue of (9),

$$\begin{aligned}
 (Z_1 - C_1) &= - \frac{(Z_2 - C_2)}{1+r} \\
 \text{or } \text{CAB}_1 &= - \text{CAB}_2(1+r)^{-1}
 \end{aligned}
 \tag{11}$$

Because of (11), in our discussion we can simply focus on Current Account Balance in period 1.

2.1 Shocks to the Economy and Current Account Balance

The closed form solutions for capital account balance and the related comparative static effects are somewhat messy. So we use graphical analysis instead to show how the capital account balance is affected by shocks and changes in economic variables. For our discussion we consider an oil importing country that has a current account deficit. Fig. 2 shows a standard graph for intertemporal utility maximization, where the budget line is BL₁. The endowment point and the equilibrium points are A₁ and E₁ respectively. Since C₁ exceeds Z₁, we can conclude that the country has a deficit in its current account balance.

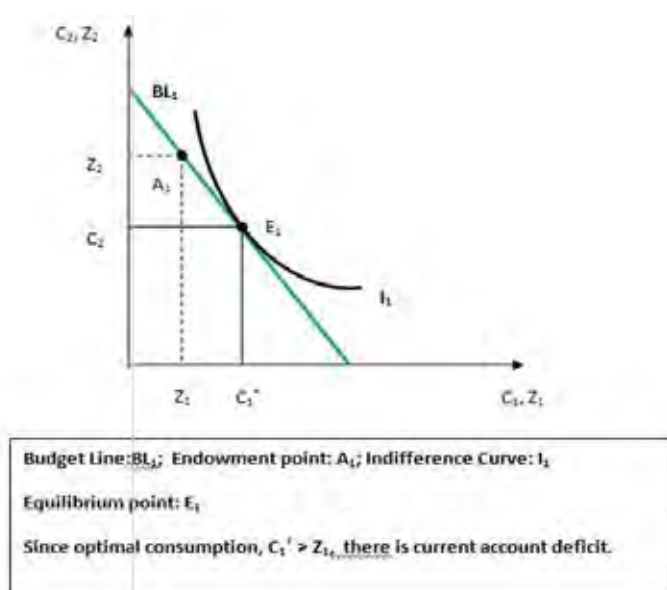


Fig. 2. Determination of current account balance

Using the above graph we can determine the effects on current account balance of various shocks to the economy, such as a reduction in GDP, increase in price of oil or increase in government spending. Consider Fig. 3. Initially, as in Fig. 2, the country has current account deficit. The initial budget line is BL1. The initial endowment point and equilibrium point are E1 and E2 respectively. A reduction in current GDP, Y1 or an increase in price of oil q1, for an oil importing country, lowers Z1 and shifts the intertemporal budget line from BL1 to the left to BL2. If the shock is temporary the endowment point shifts horizontally to A2. The new equilibrium is at E2. Current consumption falls but due to the consumption smoothing motive, it falls by a smaller amount than the decline in Z1. As a result, the current account deficit (in period 1) increases.

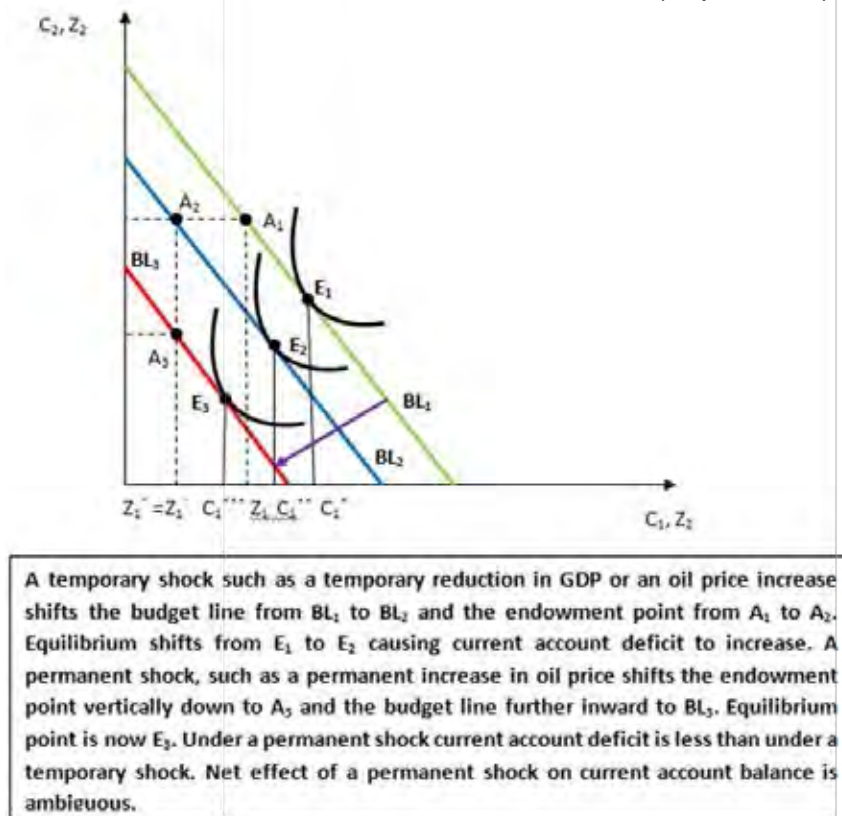


Fig. 3. Effects of temporary and permanent shocks on current account balance

Now, if the shock is permanent such as a permanent increase in oil price, since q₂ also rises by the same amount, the budget line shifts further to BL₃ with the endowment point shifting vertically down to A₃. The new equilibrium is at E₃. Compared to the temporary shock, the current account deficit improves. The net effect on current account balance is ambiguous.

Fig. 4 is used to illustrate the effect of a temporary increase in Government spending G_1 . The increase in G_1 is assumed to be paid for by a corresponding future spending cut – i.e., reduction in G_2 , so that the Government budget constraint (6) continues to hold. As a result, the budget line does not shift but the endowment point shifts up from A_1 to A_4 . Consequently, the current account deficit increases.

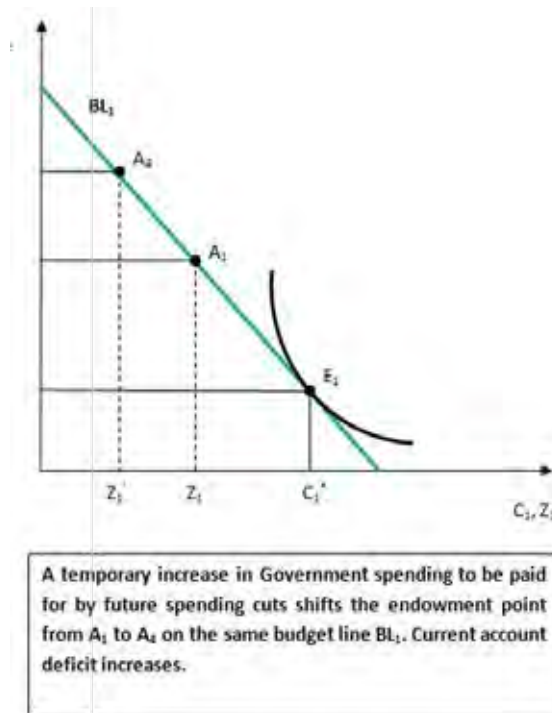


Fig. 4. Effects of temporary increase in government spending on current account balance

At this point, we should note that in this model a temporary slump is caused by an adverse shock such as an adverse productivity shock or an increase in price of oil. The temporary reduction in Y_1 or Z_1 causes current account deficit to increase. Conversely, temporary increase in Y_1 or Z_1 caused by a favorable productivity shock or a reduction in price of oil can reduce the current account deficit. These results are different from the conventional macroeconomic prediction that a boom (slump) causes current account deficit to increase (decrease) by increasing (decreasing) demand for imports. However, the current model can also accommodate the conventional macroeconomic prediction. For example, if GDP increases due to the multiplier effects associated with the increases in G , there may be competing effects on the current

account deficit and for such demand induced increase in income, current account deficit may actually increase.

The above graphical framework can be used to demonstrate the effect of interest rate on current account deficit. If the interest rate falls, the budget line becomes flatter but still passes through the same endowment point. The current consumption for a country that has a current account deficit, falls and as a result the current account deficit increases.

We summarize the basic results of the model in Result 1, below.

Result 1: Consider an oil importing country that has a current account deficit. The amount of the current account deficit increases if (i) there is a temporary slump that reduces GDP; (ii) there is a temporary increase in price of oil; in case of a permanent increase in price of oil, the effect on current account deficit is ambiguous, (iii) there is a temporary increase in government spending to be paid for by future spending cut and (iv) if interest rate falls.

2.2 Current Account Balance under Uncertainty

In this section we briefly discuss the effect of uncertainty on current account balance. The framework is very similar to the previous section. However we assume that the households maximize expected utility from consumption, where the utility function exhibits constant absolute risk aversion. The consumers are exposed to risk from various sources, such as the risk associated with future price of oil or political instability or the risk of a slump. We further assume that the risk is captured by a random variable λ , which enters the budget constraint (9) additively. Because of the structure of our model, the source of uncertainty does not affect the main result.

The households' optimization problem can be formulated as follows:

The households maximize:

$$U(C_1) + \beta EU(C_2) \tag{12}$$

Subject to
$$C_1 + \frac{C_2}{1+r} = Z_1 + \frac{Z_2}{1+r} + \lambda, \tag{9'}$$

where λ is the additive random variable that captures risk and β the utility discount factor.

The following result summarizes the effect on current account balance of an increase in riskiness associated with λ . For details see [9].

Result 2: An increase in the risk as captured by a mean preserving spread of lowers current consumption and thus improves the current account balance.

3. EMPIRICAL RESULTS

In this section we estimate U.S. current account balance using the monthly data from 1999:01 to 2011:12. The data source is *economagic.com*. We also run a related regression on the U.S. spot exchange rate by using data from 1999:01 to 2010:12.

3.1 Current Account Balance Regression

In this regression of current account balance (CAB) we first use the explanatory variables as suggested by the intertemporal model developed in section 2.1: GDP (Y), Government Expenditure (G), Price of oil (p_{Oil}), and interest rate on ten-year U.S. government bond (i). All the variables are expressed as natural logs except interest rates. In addition we include two variables to capture risks: the TED spread, the three-month LIBOR minus the three-month T-Bill rate (TED) as a measurement of credit risk and the price of gold (p_{Gold}) as an indicator of a general investment risk. The use of price of gold as an indicator of investment risk is perhaps unusual, but can be easily explained. During the time period used in the data set, price of gold almost consistently increased since investors preferred gold over other risky financial assets. Finally, we also consider the spot exchange rate (s) as a determinant of current account balance, a variable that was left out of our single good intertemporal model of section 2.

The regression equation is given by:

$$ca_t = \beta_0 + \beta_1 TE_t + \beta_2 p_{oil,t} + \beta_3 p_{gold,t} + \beta_4 s_t + \beta_5 i_t + \beta_6 y_t + \beta_7 g_t + \varepsilon_t. \quad (13)$$

The estimation results are presented in Table 1. As column 2 of Table 1 indicates both risk variables: TED and p_{Gold} are significant and that they have a positive effect on the current account balance. These effects are consistent

with the results of the analytical model. As noted in section 2, an increase in price of oil has a negative effect on current account balance, but the effect is statistically insignificant. The spot exchange rate also has a negative but insignificant effect on the current account balance. As explained in the intertemporal model, increase in interest rate has a positive and statistically significant effect on current account balance. Besides our explanation of the impact of the increase in interest rate one can also make the traditional argument that by virtue of the interest rate parity, an increase in the interest rate is due to the expected depreciation of the dollar which improves the current account balance. Finally, both GDP and Government spending have significant effects on current account balance. However, the negative effect of GDP and the positive effect spending are in contrast with the results of our basic model. They underscore the importance of the demand side effects of the macroeconomic shocks.

However, the regression has a low D-W statistic of 0.456 suggesting that the error term is serially correlated. We now re-estimate equation 13 with the same explanatory variables but adding three MA processes: MA (1), MA (2), and MA (3). As the values of column 2 indicate none of the qualitative results of the previous regression changes but the D-W statistic improves to 1.786. Also, a cointegration test for eq. (13) shows that a stationary linear combination exists for the time series (Table 3). This cointegrating equation can be interpreted as a long-run equilibrium relationship among these variables, as Engle and Granger have developed in their theory of non-stationary time series analysis [10]. Further, two other tests, a Q-statistics and a serial correlation LM test (Breusch-Godfrey Lagrange multiplier test) were performed to test for autocorrelation and partial autocorrelation of the residuals together with the Ljung-Box Q-statistics for high-order serial correlation [11]. The results show that there is no first-order serial correlation, but there is serial correlation of higher order.

3.2 The Spot Exchange Rate

We finally run a related regression of spot exchange rate [s_t (\$/€)]. We use similar explanatory variables as in equation (13) with the exception of

the risk variables, TED and pGold, lag values of the p_{oil} to test its dynamic effect, GDP, and Government spending, g .

We however include a national debt variable (in natural log), nd . We also include two dummy variables to capture the effects if Iraqi war and the European debt crisis: war dummy, WD , with values of zero (0) before 2003:03 and one (1) afterward, and European debt crisis dummy, $EDCD$, with values of zero (0) before 2009:10 and one (1) after.

Table 1. U.S. Current account balance regression [eq. (13)]

Variables	ca_1	ca_2
α_0	16.911*** (1.500)	12.959*** (1.969)
TED_t	0.041*** (0.005)	0.016*** (0.006)
P_{oil_t}	-0.013 (0.014)	-0.019 (0.015)
P_{Gold_t}	0.204*** (0.017)	0.119*** (0.022)
s_t	-0.020 (0.028)	-0.004 (0.046)
i_t	0.018*** (0.005)	0.010* (0.006)
y_t	-2.383*** (0.219)	-1.957*** (0.284)
g_t	0.513*** (0.096)	0.583*** (0.119)
$MA(1)$	-	0.980*** (0.088)
$MA(2)$	-	0.750*** (0.108)
$MA(3)$	-	0.365*** (0.085)
R^2	0.876	0.951
SSR	0.120	0.047
$D-W$	0.456	1.786
F	149.762	282.160
N	156	156

Note: cat = current account balance, $TED_t = TED$ spread ($=i_{LIBOR} - i_{RF}$), p_{oil_t} = price of oil, p_{gold_t} = price of gold, s_t = spot exchange rate ($\$/\epsilon$), i_t = interest rate on ten year U.S. government bond, y_t = GDP, g_t = Government spending, MA = moving average process, R^2 = R-squared, SSR = sum of squared residuals, $D-W$ = Durbin-Watson statistic, F = F-statistic, N = number of observations, (*), (**), and (***) = significant at the 10%, 5%, and 1% level, standard errors in parentheses.

All variables except TED spread and interest rate are in natural log.

Data Source: Economagic.com.

Data from 1999:01 to 2011:12.

The regression equation is given by:

$$s_t = \alpha_0 + \sum_{j=0}^n \alpha_j p_{oil_{t-j}} + \alpha_2 nd_t + \alpha_3 ca_t + \alpha_4 WD + \alpha_5 EDCD + \varepsilon_t \quad (14)$$

The initial regression results are reported in Table 2, column 1. But as in the case of the current account balance regression, the D-W statistic is low (0.265) suggesting that the error term is serially correlated. We now re-estimate equation 14 with the same explanatory variables, but adding two MA processes: MA (1) and MA (2). The new regression results are reported in column 2. The D-W statistic improves to 1.729. In addition, a cointegration test for eq. (14) shows that a stationary linear combination exists for the time series (Table 3). This cointegrating equation can be interpreted as a long-run equilibrium relationship among these variables. Finally, the two other tests, a Q-statistics and a serial correlation LM test (Breusch-Godfrey test) were performed to test for autocorrelation and partial autocorrelation of the residuals for high-order serial correlation. The results show that there is no first-order serial correlation, but there is serial correlation of higher order, too.

Table 2. U.S. Spot exchange rate regression [eq. (14)]

Variables	s_t	s_t	s_t	s_t
α_0	0.897 (0.566)	-2.662*** (0.612)	-0.391 (0.595)	-0.636*** (0.102)
P_{oil_t}	0.111*** (0.020)	0.130*** (0.021)	0.200*** (0.049)	0.126*** (0.023)
$P_{oil_{t-1}}$	-	-	-0.012 (0.069)	0.023 (0.020)
$P_{oil_{t-2}}$	-	-	-0.105** (0.048)	0.028 (0.023)
nd_t	-0.129** (0.066)	0.252*** (0.072)	0.027 (0.070)	0.001 (0.001)
ca_t	0.686*** (0.132)	-0.116 (0.149)	0.608*** (0.119)	0.029 (0.158)
WD	0.264*** (0.026)	0.058** (0.025)	0.236*** (0.025)	0.062** (0.024)
$EDCD$	-	-0.026* (0.026)	-0.083*** (0.025)	-0.025 (0.026)
$MA(1)$	-	1.257*** (0.076)	-	1.309*** (0.077)
$MA(2)$	-	1.048*** (0.100)	-	1.211*** (0.110)
R^2	0.849	0.969	0.875	0.972
SSR	0.614	0.126	0.557	0.125
$D-W$	0.265	1.729	0.326	1.936
F	190.552	513.154	148.176	455.652
N	141	141	156	156

Note: See, Table 1; = spot exchange rate (\$/€) = price of oil, = In national debt, = current account balance, = war dummy, = European debt crisis dummy, (*), (**), and (***) = significant at the 10%, 5%, and 1% level, standard errors in parentheses. All variables are in natural log.

Source: Economagic.com. Data from 1999:01 to 2010:12.

The results of column 2 in Table 2 show that, as expected, national debt and price of oil have statistically significant positive effects on the spot rate causing dollar to depreciate. The Iraqi war (WD) has a significant negative effect on the value of the U.S. dollar (spot rate was increasing). The European debt crisis (EDCD) has a significant negative effect on euro and consequently lowers the spot rate and causes the dollar to appreciate. Current account balance has a statistically insignificant effect. [The details of exchange rate dynamics are discussed in [9].

Table 3. Cointegration tests of the multi-variables models

Eq. (13); Variables: $ca, TED, p_{oil}, p_{Gold}, \bar{s}, \bar{i}, y, g$						
(Maximum lag in VAR=2)						
Null	Alternative	Eigenvalue	Trace Test Statistics	Critical Value 95%	Maximum Eigenvalue Test Statistics	Critical Values 95%
$r = 0$	$r > 0$	0.574	257.790**	159.530	130.379**	52.363
$r \leq 1$	$r > 1$	0.224	127.412**	125.615	38.864	46.231
$r \leq 2$	$r > 2$	0.103	68.548	95.754	31.076	40.078
$r \leq 3$	$r > 3$	0.127	57.539	69.819	20.720	33.877
$r \leq 4$	$r > 4$	0.104	36.819	47.856	16.726	27.584
$r \leq 5$	$r > 5$	0.075	20.093	29.797	11.988	21.132
$r \leq 6$	$r > 6$	0.039	8.107	15.495	6.113	14.264
$r \leq 7$	$r > 7$	0.019	1.994	3.841	1.994	3.841

Note: See Table 1; Trace test indicates 2 cointegrating equations at the 5% level. Maximum eigenvalue test indicates 1 cointegrating equation at the 5% level.

Eq. (14); Variables: $\bar{s}, p_{oil}, nd, ca, WD, EDCD$						
(Maximum lag in VAR=2)						
Null	Alternative	Eigenvalue	Trace Test Statistics	Critical Value 95%	Maximum Eigenvalue Test Statistics	Critical Values 95%
$r = 0$	$r > 0$	0.202	102.765**	95.754	34.560	40.078
$r \leq 1$	$r > 1$	0.183	68.214*	69.819	30.947	33.877
$r \leq 2$	$r > 2$	0.108	37.267	47.856	17.487	27.584
$r \leq 3$	$r > 3$	0.086	19.780	29.797	13.795	21.132
$r \leq 4$	$r > 4$	0.033	5.985	15.495	5.180	14.265
$r \leq 5$	$r > 5$	0.005	0.805	3.841	0.805	3.841

Note: See Table 2; Trace test indicates 1 cointegrating equation at the 5% level and 1 cointegrating equation at the 10% level. Maximum eigenvalue test indicates no cointegration at the 5% level. Source: See Table 1 and 2.

4. CONCLUDING REMARKS

The objective of this analysis is to determine the exchange rate dynamics based on shocks on the economy and on current account, due to oil prices, debts, and risk, between the U.S. dollar and the euro. Lately, the U.S. dollar was losing value with respect the euro and other major currencies of the world and we want to see if this depreciation depends on economic shocks and economic fundamentals or it is just speculation from individuals and countries, which hold

large amounts of foreign assets denominated in different currencies or due to the current global financial crisis, recessions, instability, and the risk that the U.S. might freeze the foreign funds invested in its assets. The preliminary conclusion from this ex post analysis is, here, that, international investors are investing in countries with higher return, lower risk, and safety. This increase in demand for these assets, increases the demand for currency in that country and its currency is appreciated,⁵ the oil prices, the high risk and the enormous debts are affecting negatively the currency. Before 2001, people were invested in the U.S. and Japan, so the U.S. dollar and the Japanese yen were appreciated. After 2001, they invested in Euro-zone and the U.K. and the dollar and yen lost their value. Of course, due to high risk (wars and creeping ones, political conflicts, and a unique financial crisis) and low returns, many speculators have invested in euros and other currencies, instead in dollars denominated assets. Since November 2009, we have seen a change in this trend because of the Euro-zone debt problems. The current account is affected by risk and high debts, too.

Lastly, in this paper we have used the insights of an intertemporal model of consumption to analyze the recent behavior of the current account balance in the U.S. We have examined the roles of risk, price of gold, price of oil, TED spread, as well as interest rate, GDP and government spending. We have also analyzed the behavior of spot rate. In future papers we plan to use this framework to run a cross-country analysis of current account balance where we plan to include both the OECD and the developing countries.

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⁵ Here, the causality goes from $i_{AAA} \uparrow \xrightarrow{3.236} S \downarrow (\$ \uparrow)$ and $(\rho_{i,S} = -0.809)$.

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Grytsenko Andrii,

Institute for Economics and Forecasting of Ukrainian NAS,

Professor, Doctor of Economics

***The formation of information-network economy
as a fundamental process of evolution of modern
civilization***

Гриценко Андрей,

Институт экономики и прогнозирования

Национальной академии наук Украины,

профессор, доктор экономических наук

***Становление информационно-сетевой экономики
как основополагающий процесс эволюции
современной цивилизации***

Современная цивилизация находится в процессе трансформации, переживая кризисные явления глобального характера. Несмотря на многочисленные публикации, посвященные этой теме, остается недостаточно выясненной стержневая линия исторического движения общества и способы ее влияния на цивилизационные характеристики трансформирующегося общества. Целью данной статьи является выяснение основополагающего процесса общественных трансформаций, его влияния на изменения типологических характеристик человека и общества и определение принципов построения деятельности, адекватных современному миру.

Разнообразные формы проявления глобального кризиса имеют общее основание, связанное с логикой исторического перехода от *индустриально-рыночной* к *информационно-сетевой экономике*. Этот переход имеет основополагающий характер и обуславливает другие трансформационные характеристики цивилизационного процесса. Информация постепенно становится наиболее значимым продуктом производства и ресурсом, на производство которого

расходуется все возрастающая часть общественного времени. А организационно-функциональной формой существования информации является сеть. С развитием информационно-сетевой экономики существенные изменения происходят в отношениях собственности, труда и распределения. Законы воспроизводства информации существенно отличаются от законов, регулирующих воспроизводство материально-вещественных благ в индустриально-рыночной экономике.

Например, в процессе передачи информации, ее обмена, никто ничего не теряет, а все только обогащаются знаниями [1]. Сделать информацию всеобщей собственностью – значит сделать каждого индивида ее собственником. Индивидуальная и всеобщая (общественная) собственность в этом случае диалектически совпадают. Ничего подобного в принципе не может быть с материальными благами.

Кривая спроса на сетевые блага является восходящей, а не нисходящей, как кривая спроса на обычные материальные блага [2] и т.д. Формирование информационно-сетевой экономики в недрах индустриально-рыночной приводит к тому, что наряду с изученными законами начинают действовать другие, не изученные, не познанные, но приобретающие все большее значение. Например, совокупный спрос экономики, в которой половина благ являются обычными, а половина сетевыми, уже нельзя определить на основе прежней модели. Она не будет адекватно отражать реальность. Экономическая действительность перестает соответствовать полученным на основе предыдущего опыта знаниям. Поэтому снижается уровень управляемости в обществе и усиливается хаотичность социально-экономических и политических процессов.

Современное общество пытается регулировать экономические отношения, возникающие по поводу производства, распределения, обмена и потребления информации, на основе представлений и системы категорий, сформировавшихся на основе индустриально-рыночного хозяйства. Такая регуляция не может быть адекватной новой формирующейся экономической структуре. Именно с этим связаны неопределенность правового поля и конфликты в сфере интеллектуальной собственности, возникновение и деятельность «пиратских» партий в западноевропейских и других странах. Это также является фактором, способствующим имущественному расслоению членов общества и акту-

ализирующим вопрос о справедливости распределения общественного продукта и доходов.

Вместе с формированием информационно-сетевой экономики формируются сетевой человек (Netman) и сетевое общество. Современный человек включен в большое количество сетей, в каждой из которых свои правила и нормы, стереотипы поведения и ценности. Переходя из одной сети в другую, человек меняет свое поведение, черты своей личности. Его личность распадается на фрагменты, которые не связаны между собой, а сосуществуют как параллельные миры. Мышление Netmana фрагментарное, ситуативное и функциональное. Оно похоже на клип, в котором ассоциативно чередуются определенные образы. Такое мышление не является самостоятельным и не способно ставить вопрос о сути явлений, ее отличии от внешних форм, воспроизводить в сознании предмет в его целостности, а не только в различных функциональных проявлениях.

Netman знает только функции вещей и пользуется ими на практике. Он не способен адекватно реагировать на существенные изменения ситуации. Его поведение определяют сетевые идеологемы, а не понимание сути вещей. Таким образом, формирование информационно-сетевой экономики не только дает шанс для научно-технического, социально-экономического и духовного прогресса, но и порождает существенные риски фрагментации человеческой личности и распада общества. Это риски самого существования современной цивилизации.

Большое количество разнообразных сетей (экономических, торговых, социальных, религиозных, профессиональных, идеологических, научных, гендерных, информационных, политических, националистических, террористических, миротворческих, волонтерских и др.) со своими правилами и нормами, ценностями и целями образуют общественную структуру, которая приходит на смену существующей, становится основополагающей, характеризуется внутренней противоречивостью, конфликтностью, в значительной степени непримиримостью ряда сетей и порождает противостояние, социальные, политические конфликты и войны.

Распространение сетевых структур и вхождение их в основание общества придает развитию бифуркационный характер ведет к возрастанию хаотичности связей и конфликтности, порождает целый ряд новых рисков и противоречий,

которые особенно остро проявляются в государствах со слабыми институциональными структурами.

В этом контексте основополагающую роль играет противоречие между глобализацией, реализующейся посредством информационно-сетевых и финансовых механизмов, и пространственно-страновой локализацией материальных и трудовых ресурсов, не способных перемещаться в пространстве со скоростью информации и финансовых потоков. Конфликтными формами проявления этого противоречия являются глубокие финансово-экономические кризисы в государствах с относительно слабой экономикой внутри интеграционных образований, попытки определенных национально-территориальных единиц получить независимость, требования более глубокой регионализации, противодействие ряда политических сил углублению интеграции стран ЕС, вооруженные конфликты в странах, где концентрируются экономические и геополитические интересы транснациональных корпораций и государств их базирования и др.

Усиливается противоречие между накоплением капитала, приводящим к росту экономического неравенства [3], и требованиями всеобщей доступности благ и их справедливого распределения в условиях формирования информационно-сетевого общества. Результатом этого противоречия являются социальные протесты и революции.

Диалектика глобализации и локализация отчетливо выражает природу современного мира, который является разделенно-совместным. Это определение отражает наиболее общую характеристику и в то же время наиболее общую проблему современности: как обеспечить *соединение обособленных* элементов системы (найти работу, продать товар, получить деньги, включить домохозяйства, фирмы, виды экономической деятельности в общий процесс целостного воспроизводства общественной жизни, обеспечить сбалансированность государственных и семейных бюджетов, регионального развития, достичь торговых и платежных балансов стран, эффективно встроить национальную экономику в мировую и т.д.). Без этого включения индивидуальной, относительно обособленной деятельности в общую систему функционирования хозяйства осуществить общественное воспроизводство невозможно.

Методологической основой поиска путей выхода из глобального цивилизационного кризиса является понимание и учет в практической деятельности

особенностей современного разделенно-совместного мира, которые обуславливают принципы построения деятельности, адекватные сущности этого мира. К ним можно отнести:

1. Принцип учета рефлексивности отношений.

Ни отдельный индивид, ни отдельная страна не может исходить из того, что то, что они делают как самостоятельные субъекты, не имеет никакого отношения к другим субъектам. Современный мир является взаимозависимым. То, что происходит в одной точке социально-экономического пространства, так или иначе отражается и в других точках. Независимость существует лишь как момент взаимозависимости. Но если этот момент начинает приобретать самостоятельность, отрицающую другие моменты, то он превращается в деструктивный элемент.

2. Принцип разделенно-совместного суверенитета.

Страны, вступающие в разнообразные экономические и другие союзы и имеющие право выхода из них, при передаче своих полномочий наднациональным образованиям не теряют, а реализуют свой суверенитет в разделенно-совместной форме. Это касается всех видов суверенитетов (народного, экономического и т.д.).

3. Принцип взаимопризнания прав на особенности поведения (стран, регионов, социальных групп и пр.) и наличия общих ограничений.

Все субъекты взаимодействия договариваются о тех правилах и ограничениях, которые не должны нарушаться. Этот же договор означает, что все остальное находится в пределах прав субъектов.

4. Принцип компромисса как главного средства разрешения противоречий.

Интересы субъектов всегда имеют сторону общности и обособленности. Важно понять и признать, что компромисс, предполагающий определенные уступки и поиск взаимоприемлемого решения, является нормальным, адекватным современному миру способом разрешения противоречий.

5. Принцип разделенно-совместной ответственности.

Каждый субъект несет свою долю ответственности в рамках совместно-разделенный полномочий.

6. Принцип мирного сосуществования.

Данный принцип является обобщенным выражением предыдущих и фиксирует нацеленность на мирные способы разрешения противоречий и отрицает вооруженный путь.

7. Принцип отрицания отрицания разделенно-совместного существования.

Этот принцип означает, что к тем, кто отрицает разделенно-совместное существование, данные принципы не применяются. Поэтому по отношению к ним возможны иные подходы.

Признание этих принципов как адекватных современному состоянию общества, изучение способов их применения во всех сферах жизни и их практическое воплощение является условием дальнейшего цивилизационного прогресса.

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Anna Kozachenko,

Vinnitsia National Agrarian University,

Senior Lecturer, Candidate of Economic Sciences

Non-production and transactional expenses: identical and different meanings

Анна Козаченко,

Вінницький національний аграрний університет,

старший викладач, кандидат економічних наук

Невиробничі та транзакційні витрати: тотожні й відмінні значення

Проведення господарської діяльності, виконання робіт, надання послуг, виробництво продукції не можливо здійснювати без понесення підприємством витрат, у тому числі невиробничого характеру, що пов'язані із процесами управління, обслуговування та організації такої діяльності.

Невиробничі витрати – це витрати, які опосередковано відносяться до процесу виробництва і пов'язані з управлінням виробничим процесом і реалізацією продукції (робіт, послуг) [1, с. 46]. Існуюче теоретичне та практичне визначення невиробничих витрат більшою мірою пов'язане з адміністративними витратами, витратами на збут та іншими витратами операційної діяльності.

Витрати підприємства, їх види, статті та елементи постійно відстежуються адміністративно-управлінським персоналом та регулюються нормативно-правовими документами. Невиробничі витрати та місце їх у системі усіх витрат підприємства визначено П(С)БО 16 “Витрати”: 1) склад (адміністративні витрати, витрати на збут та інші операційні витрати); 2) відношення до видів економічної діяльності (де операційна діяльність відповідно до НП(С)БО 1 розкривається через основну та іншу операційну діяльність); 3) значення для обліку (де невключення невиробничих витрат до собівартості реалізованої продукції свідчить про списання на кінець звітного періоду на фінансовий результат) [2].

Аналіз літературних джерел дав змогу встановити, що серед учених немає єдиного підходу до визначення економічного змісту невиробничих витрат. Дискусійність та невирішеність даного питання значно ускладнює на практиці організацію їх обліку та контролю.

Дослідження економічного змісту невиробничих витрат дало підстави переконатись у їх зв'язку із категорією "трансакційні витрати".

Тлумачення трансакційних витрат, що в подальшому стало основою для розробки вченими їх класифікаційних підходів, Р. Коуз пов'язував із діяльністю між господарюючими суб'єктами, в результаті якої виникають витрати на укладання угод для забезпечення процесу обміну. „Покупці і продавці мають знаходити один одного; покупці повинні вивчити те, що продавці можуть їм запропонувати, а продавці – що покупці хочуть придбати; обидві сторони мусять вивчити ціни, за якими інша сторона погодиться здійснювати операції, сторони повинні вести переговори, виробляти контракти, забезпечувати їх виконання тощо” [3, с. 33].

З метою розробки методології обліку трансакційних витрат, їх аналізу та контролю для підвищення ефективної економічної діяльності підприємства, уникнення ризиків при укладанні угод та виконанні договірних умов, здійснення ефективного стратегічного управління підприємством в умовах ринкової економіки, дослідженню категорії трансакційних витрат значну увагу приділяють вітчизняні вчені, такі як: О.В. Борович [4], Т.А. Васильєва [5], О.В. Замазій [6], Г.Г. Кірейцев [7], І.Г. Костирко [8], І.Б. Садовська [9] та ін.

Узагальнення запропонованих ними видів трансакційних витрат, що розкривають сутність цієї категорії та безпосередній зв'язок із невиробничими витратами, дає змогу дослідити співвідношення хронологічної послідовності етапів здійснення підприємством трансакцій зі складовими трансакційних витрат, що притаманні договірному процесу:

1. Ведення переговорів: а) витрати на пошук інформації (витрати на пошук інформації щодо стану на ринку; витрати на пошук інформації щодо потенційних партнерів; витрати на пошук вигідних угод щодо умов придбання, реалізації та ціни; витрати на рекламу, зустрічі, зв'язок; збитки, як результат дезінформації; витрати виявлення альтернатив); б) витрати на проведення переговорів (витрати на переговори щодо укладання угод, умов обміну, рішень між власниками; витрати на розробку договорів, консультаційні послуги, юридичне

обслуговування); в) витрати на вимірювання якості товарів і послуг (витрати на розробку систем стандартів; витрати на оплату послуг посередників, експертів, оцінщика; витрати на отримання сертифікатів якості; втрати від помилок).

2. Укладання договору: витрати на укладання угод або контрактів (витрати на організацію та проведення переговорів; витрати на телефонні розмови, транспортні витрати; витрати на юридичні та нотаріальні послуги щодо оформлення угоди; витрати на підготовку установчих документів).

3. Виконання договору: витрати на виконання умов договору (витрати на адаптацію умов договору до обставин; імпорتنих операцій, проходження митних процедур; витрати на транспортування цінностей; витрати, пов'язані зі зміною законодавства; інші витрати, що виникають під час придбання, реалізації, зумовлених виконанням договору).

4. Контроль виконання договору: а) контроль за виконанням контрактів (витрати, пов'язані з моніторингом за дотриманням умов угоди і попередженням відхилення від виконання цих умов; витрати на юридичні послуги, пов'язані із захистом прав власності і відновленням порушених прав; судові витрати; втрати від поганої специфікації та ненадійного захисту прав власності); б) витрати опортуністичної поведінки (витрати на контроль щодо дотриманням та виконання умов угоди (витрати на експертів) та запобігання відхилень від цих умов; витрати від непередбачених подій; витрати на запобігання можливого умисного порушення; витрати страхування ризиків щодо невиконання договорів (контрактів); в) витрати на специфікацію прав власності (витрати на оплату послуг юристів; витрати на утримання судів, арбітражу; витрати часу й ресурсів для відновлення порушених під час виконання контракту прав; втрати від ненадійного захисту); г) витрати захисту від третіх осіб (витрати на захист від претензій третіх осіб щодо частини корисного ефекту, отриманого в результаті угоди).

За допомогою представлених етапів договірному процесу простежується взаємозв'язок невиробничих витрат із трансакційними витратами, що виникають у розрізі кожної угоди під час організації договірних відносин та їх виконання суб'єктами господарювання в межах операційної діяльності. Тобто зазначені складові трансакційних витрат є безпосередньо невиробничими витратами.

Водночас слід зазначити, що не всі вчені досліджують трансакційні витрати договірному процесу відповідно до наведених етапів трансакцій на підприємстві. Крім того, в економічній літературі немає єдиної думки щодо видів

транзакційних витрат. Проте з метою облікового відображення невиробничих витрат та їх контролю виділені етапи допоможуть у розкритті необхідної інформації для прийняття оперативних управлінських рішень у процесі господарської діяльності.

Проводячи аналогію між невиробничими та транзакційними витратами, можна спостерігати, що це витрати, які пов'язані із процесами налагодження, укладання, організацією і виконанням зовнішніх договірних відносин. Ототожнення досліджуваних категорій простежується в роботі М.С. Пушкаря, де транзакційні витрати договірного процесу він пов'язує із витратами, необхідними для "...проведення підприємством робіт з налагодження зв'язків при укладанні контрактів, виробництва і збуту продукції та організації роботи самого підприємства" [10, с. 202–203]. Вважаємо, що таке визначення характеризує невиробничі витрати господарської діяльності та властиве їм.

Поряд із ринковими транзакційними витратами договірного процесу вчені виокремлюють внутрішньофірмові транзакційні витрати [11, с. 89], або як у деяких літературних джерелах – управлінські транзакційні витрати [12, с. 138–148], тобто такі витрати, які виникають при реалізації права давати розпорядження в середині підприємства.

Думку про те, що невиробничі витрати та внутрішньофірмові транзакційні витрати мають однакове значення висловлює О.В. Замазій. Щоправда, науковець обмежується операційною діяльністю підприємства і, характеризуючи останні, зазначає, що це витрати, які: а) безпосередньо не відносяться до створеної продукції (робіт, послуг) і які більшою мірою пов'язані з підготовкою й організацією виробництва; б) не включаються до складу собівартості продукції (робіт, послуг); в) неможливо прямо пов'язати з доходом певного періоду; г) відображаються у складі витрат того звітного періоду, в якому вони були здійснені [13, с. 98].

З наведеного О.В. Замазій робить висновок, що транзакційні витрати в розрізі операційної діяльності характеризують не процес виробництва продукції, а саму підготовку до нього.

Однозначно стверджувати, що невиробничі витрати є транзакційними витратами, вважаємо за неможливе. Підтвердженням цього слугує те, що невиробничі витрати, виникнення яких зумовлено визначеними обставинами і особливостями (нормами законодавства), а не результатом взаємодії учасників

транзакції та які можна віднести до трансформаційних витрат. До таких невиробничих витрат відносять витрати на утримання основних засобів, інших матеріальних необоротних активів загальногосподарського використання; витрати пакувальних матеріалів для затарювання готової продукції на складах; витрати на ремонт тари для зберігання продукції; витрати на утримання основних засобів, інших матеріальних необоротних активів, пов'язаних зі збутом продукції, товарів, робіт, послуг (операційна оренда, страхування, амортизація, ремонт, опалення, освітлення, охорона); витрати на транспортування, перевалку і страхування готової продукції (товарів), транспортно-експедиційні та інші послуги; сумнівні та безнадійні борги; собівартість реалізованих виробничих запасів; втрати від курсової різниці тощо.

Таким чином, розглядаючи тотожні та відмінні значення невиробничих й транзакційних витрат, встановлено, що невиробничі витрати виникають, як в процесі ведення договірних відносин між суб'єктами господарювання й організації діяльності підприємства, так і є продовженням виробничого процесу, з метою забезпечення інформаційних потреб менеджерів різних рівнів управління для здійснення ефективних господарських операцій.

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Fabiianska Victoria,

Vinnytsia National Agrarian University,

Associate Professor of Audit and the State Control

Cost at the Agricultural Enterprises Procedure of Calculation of the Biofuels Abstract

Фабіянська В.Ю.,

Вінницький національний аграрний університет,

доцент кафедри аудиту та державного контролю

Методика калькулювання собівартості біологічного палива на сільськогосподарських підприємствах

Постановка наукової проблеми та її значення. Зважаючи на вичерпність основних енергетичних ресурсів та вплив концепції сталого розвитку на подальший економічний та соціальний розвиток людства, виникає необхідність у використанні відновлюваних джерел енергії, якими є енергія вітру, сонця, біомаси, гідроенергія.

Значного поширення у світі набули рідкі види біологічного палива, до яких, зокрема, відносяться біодизель та біоетанол. Такі види біологічного палива виробляються із сільськогосподарських культур, а тому нерідко самі сільськогосподарські виробники здійснюють виробництво біодизельного палива у власних підсобних промислових виробництвах з метою задоволення енергетичних потреб при здійсненні польових робіт та отримання додаткових фінансових ресурсів від його реалізації.

Як свідчать економічні джерела, собівартість виробництва рідких біологічних палив не є низькою, тому виникає необхідність у дослідженнях особливостей методики калькулювання собівартості біопалива та визначення основних факторів, які впливають на її зниження.

Аналіз досліджень цієї проблеми. Проблеми організації обліку та калькулювання собівартості продукції досліджували вітчизняні та зарубіжні вчені, а саме: В.А. Дерій, В.М. Жук, Я.П. Іщенко, Ю.Я. Лузан, Т.Г. Маренич, М.Г. Михайлов, Л.В. Нападівська, Н.Л. Правдюк, М.С. Пушкар, Л.К. Сук, П.Л. Сук, М.Г. Чумаченко та ін.

В.А. Дерій, досліджуючи методику калькулювання біодизелю, виокремлює такі етапи визначення собівартості одиниці біодизельного палива: 1) з'ясування вартості насіння ріпаку (грн./т) і вихід олії; 2) визначення собівартості 1 л біодизеля [1, с. 416].

В.І. Гавриш, дослідивши порядок формування цін на біопаливо, зазначив, що найсуттєвішим фактором впливу на його собівартість є вартість рослинної сировини, яка залежить від урожайності сільськогосподарських культур, вибору виду культури, технології їх переробки та дотацій сільгоспвиробникам [2, с. 94].

Н.Л. Правдюк та Я.П. Іщенко виокремили елементи облікової політики щодо витрат на виробництво біопалива, запропонувавши наступний їх перелік та зміст: об'єкти обліку витрат, об'єкти калькуляції, класифікація витрат, статті калькуляції, принцип обліку і розподілу непрямих витрат, метод обліку витрат на виробництво, методики розрахунку собівартості, методика оцінки отриманої продукції.

Ціль і завдання статті. Метою написання статті є дослідження існуючих методів калькулювання собівартості продукції та обґрунтування найбільш прийнятної для визначення собівартості біодизельного палива, враховуючи технологічні особливості його виготовлення на сільськогосподарських підприємствах України.

Завданнями статті є: дослідження особливостей технології виробництва біодизельного палива; розгляд існуючих методів калькулювання собівартості продукції; аналіз впливу технологічних особливостей виготовлення біопалива на вибір методу калькулювання його собівартості.

Виклад основного матеріалу і обґрунтування отриманих результатів дослідження. Суть калькулювання полягає у визначенні собівартості одиниці продукції діленням загальної суми витрат на кількість одержаної продукції.

Термін «біопаливо» охоплює всі види транспортного або рідкого палива, які виробляють з біомаси. Біодизельне паливо (РМЕ – ріпаково-метиловий ефір)

– це вид біологічного палива, який одержують з жирів рослинного і тваринного походження і яким замінюють нафтове дизельне пальне.

Дослідження, проведені автором в частині калькулювання собівартості біологічного палива сільськогосподарськими підприємствами, дали змогу зробити висновок про відсутність єдиної методики визначення фактичної вартості біопалива, яка б враховувала технологічні особливості його виробництва та одержання продукції (основної і побічної). Це створює певні проблеми для достовірного інформаційного забезпечення управлінського персоналу та проведення внутрішньогосподарського контролю виробництва біопалива, адже калькулювання собівартості одиниці продукції має важливе значення для визначення економії або перевитрат запасів на виробництво біопалива.

Залежно від об'ємів виробництва біопалива облік витрат можна організувати за простим (деякі науковці називають його котловим) методом обліку витрат. Проте в результаті дослідження нами були виявлені чинники, які викликають необхідність організації обліку витрат на виробництво біопалива за попередільним методом, а саме:

- 1) особливості технологічного процесу;
- 2) організація дієвого контролю за процесом формування собівартості біопалива (виділення технологічних цехів (центрів відповідальності);
- 3) можливість надання послуг стороннім підприємствам з виготовлення біопалива на давальницьких умовах, що передбачає необхідність калькулювання вартості напівфабрикатів (олія, РМЕ) на етапах його виготовлення.

На практиці використовують такі способи калькулювання: простий, коефіцієнтний, пропорційний, метод виключення вартості побічної продукції, комбінований. На необхідність застосування такої різноманітності способів в процесі калькулювання впливають, на нашу думку, такі чинники:

- особливості технологічного процесу виготовлення продукції;
- особливості самої продукції;
- обраний метод обліку витрат і калькулювання.

Т.О.Мулик вважає, що вибір методу калькулювання собівартості продукції залежить від способу групування витрат за об'єктами обліку, визначеного методом обліку витрат на виробництво продукції і способом розподілу витрат між окремими видами продукції [4, с. 102].

Вбачаємо за доцільне здійснити дослідження способів визначення собівартості продукції з метою можливості їх застосування при калькулюванні біопалива.

Простий метод калькулювання продукції застосовують у виробництвах, де виготовляють один вид продукції і де немає незавершеного виробництва або розміри його незначні. За таким методом собівартість одиниці виготовленої продукції визначається шляхом ділення витрат, віднесених на таку продукцію. Простий метод калькулювання застосовують найчастіше в таких галузях, як автотранспорт, водо- та електропостачання.

Метод виключення вартості побічної продукції застосовують тоді, коли поряд з основною або супутньою продукцією виробляють ще й один або кілька видів побічної продукції. Такий метод полягає в тому, що із загальної суми витрат (у виробництві біодизельного палива, наприклад, виготовлення рослинної олії), виключають вартість побічної продукції (шроту), оціненої за певною методикою. Як правило, побічну продукцію оцінюють за справедливою вартістю, якщо її реалізують, або за ціною її можливого використання, якщо її використовують у господарстві. В подальшому собівартість продукції визначають так, як і при простому методі. Значну роль для достовірності собівартості відіграє правильно обрана (розроблена) методика оцінки побічної продукції. Метод виключення вартості побічної продукції, як правило, не застосовується самостійно, він є лише допоміжним для визначення собівартості.

Метод виключення вартості незавершеного виробництва – це метод визначення собівартості продукції, при якому від загальної суми витрат віднімають вартість незавершеного виробництва. При цьому вартість незавершеного виробництва визначають методом інвентаризації або за даними оперативного обліку.

Комбінований метод, як свідчить сама його назва, – це поєднання кількох попередніх методів калькулювання. Наприклад, при визначенні собівартості біопалива поєднують простий метод калькулювання та метод виключення вартості побічної продукції. При цьому на початку калькулювання від усіх витрат на виробництво ріпакової олії віднімають вартість побічної продукції, а потім її собівартість визначають простим методом калькулювання.

Т. Маренич розрізняє такі методи калькулювання собівартості продукції: метод послідовного підсумовування витрат та метод прямого накопичення, а також способи калькуляції [5, с. 24].

Метод послідовного підсумовування витрат застосовують при калькулюванні витрат на виробництво біодизельного палива, він полягає в тому, що вартість готової продукції визначають на основі послідовного підсумовування витрат, які збирають на окремих аналітичних рахунках. Аналітичні рахунки відкривають у межах кожного технологічного переділу.

Такий процес визначення собівартості біопалива має місце тоді, коли на кожному переділі не визначають собівартість напівфабрикатів, якими є ріпакове насіння, ріпакова олія, РМЕ (ріпаково-метиловий ефір). Цей спосіб визначення собівартості називається безнапівфабрикатним. В такому випадку формула визначення собівартості біодизельного палива матиме вигляд:

$$C(б) = V(I \text{ пер.}) + (V(II \text{ пер.}) - П) + (V(III \text{ пер.}) - П) + V(IV \text{ пер.}), \text{ де:}$$

$C(б)$ – собівартість біодизельного палива;

$V(I \text{ пер.})$ – витрати першого переділу (вирощування сировини (ріпаку));

$V(II \text{ пер.})$ – витрати другого переділу (пресування та очищення олії);

$V(III \text{ пер.})$ – витрати третього переділу (виробництво РМЕ (ріпаково-метилового ефіру));

$V(IV \text{ пер.})$ – витрати четвертого переділу (змішування РМЕ з традиційним дизельним паливом);

$П$ – вартість побічної продукції, визначена за обраною підприємством методикою.

Проте можливий варіант, коли облік виробництва біодизельного палива буде здійснюватиметься за напівфабрикатним способом. Тоді на кожному переділі визначають собівартість виготовленої продукції, яка є напівфабрикатом для наступного процесу.

Висновки і перспективи подальших досліджень. Калькулювання собівартості одиниці продукції має важливе значення для визначення економії або перевитрат запасів на виробництво біопалива. У зв'язку з цим виведена формула визначення собівартості біодизельного палива, яка враховує технологічні особливості його виробництва та одержання продукції (основної і побічної), а також регламентує певний порядок дій у розрахунках: 1 - підсумовування витрат на кожному переділі; 2- перенесення узагальненої суми на наступний переділ;

3 - визначення собівартості кінцевого продукту – біодизелю (шляхом ділення його кількості на суму понесених витрат).

Запропонована методика калькулювання собівартості біопалива дає можливість не здійснювати розрахунок собівартості напівфабрикатів (якими є ріпакове насіння, ріпакова олія, ріпаково-метиловий ефір) на кожному переділі та визначає доцільність використання попередільного методу обліку витрат.

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Korolyeva Ekaterina Yu.,

*Senior Lecturer in the Department of Management
and the Customs of the Smolensk Branch
of Plekhanov Russian University of Economic*

***Problems of interaction between households
and asset management companies in the conditions
of reforming housing and communal services***

Королёва Екатерина Юрьевна,

*старший преподаватель кафедры менеджмента
и таможенного дела Смоленского филиала
РЭУ им. Г.В. Плеханова*

***Проблемы взаимодействия домохозяйств
и управляющих компаний в условиях
реформирования ЖКХ***

В настоящее время, в связи с переходом на рыночные отношения в ЖКХ России возникли новые формы управления многоквартирными домами: управляющие компании, товарищества собственников жилья (ТСЖ) и непосредственное управление. Данные формы породили множество проблем в вопросах взаимодействия домохозяйств и управляющих компаний по предоставлению качественных жилищно-коммунальных услуг.

Среди современных российских ученых, исследования которых посвящены проблеме повышения эффективности функционирования сферы ЖКХ в условиях становления рыночных отношений, можно выделить работы: М.Н. Кондратьевой, Н.В. Проваленовой, М.Б. Рыбальченко, Л.Н. Чернышова [1], Е.В. Тарасовой [2], Д.Г. Высокинского, А.А. Офицера, Е.В. Абрамовой, Н.Б. Косаревой, С.Б. Сиваева [3], И.В. Стародубровской, А.В. Широкова, С.Н. Глазунова. Однако в указанных выше работах уделяется недостаточно внимания выделе-

нию и анализу проблем взаимодействия управляющих компаний и домохозяйств в процессе предоставления жилищно-коммунальных услуг населению.

Целью данной статьи является исследование возникших в результате многолетнего осуществления реформы проблем взаимодействия домохозяйств и управляющих компаний в вопросах предоставления жилищно-коммунальных услуг. **Задачами** статьи стали выделение и описание существующих проблем взаимодействия домохозяйств и управляющих компаний для дальнейшего поиска путей их решения.

В ходе проведения научного исследования были выявлены следующие проблемы взаимодействия домохозяйств и управляющих компаний:

1. Систематическая неоплата услуг. Факт систематической неоплаты предоставленных жилищно-коммунальных услуг некоторыми домохозяйствами многоквартирного дома приводит, с одной стороны, к росту затрат управляющей компании на обслуживание дома, а с другой – к трудностям реализации права добросовестных плательщиков на получение жилищно-коммунальных услуг нужного качества и в полном объеме. В условиях сложившейся правовой практики управляющие компании не обращаются в суд с иском к неплательщикам. У суда, в свою очередь, отсутствует возможность применить в качестве санкции за неоплату жилищно-коммунальных услуг выселение жильцов из квартиры, которая принадлежит домохозяйству на праве частной собственности. В отношении жильцов, проживающих в квартире по договору социального найма, данный вид санкции применить возможно, так как право собственности на такую квартиру принадлежит муниципальному образованию. В качестве правовых способов воздействия на домохозяйства, имеющие квартиру в частной собственности и систематически не оплачивающие жилищно-коммунальные услуги, возможно использовать отключение от подачи коммунальных услуг после шести месяцев неуплаты. Однако, согласно постановлению Правительства Российской Федерации №354 от 06.05.11 «О предоставлении коммунальных услуг собственникам и пользователям помещений в многоквартирных домах и жилых домов», отключать коммунальные услуги возможно уже после 3 месяцев неуплаты. Но на практике данная правовая норма трудно реализуема по техническим причинам.

2. Убытки в деятельности управляющей компании. Рассмотренная выше проблема систематической неоплаты предоставленных жилищно-

коммунальных услуг оказывает непосредственное влияние на финансовое положение управляющей компании. Возникает ситуация, когда услуги оказаны и работы выполнены, но не оплачены потребителями. Как следствие, у управляющей компании, в условиях недостатка финансового обеспечения, отсутствует возможность исполнять в полной мере условия договора, касающиеся качества обслуживания дома. В данной ситуации добросовестные плательщики лишены права на получение качественных услуг, что приводит к возрастанию недовольства деятельностью управляющей компании.

3. Раздельное обслуживание инженерных систем. Сетевая организация поставляет коммунальные ресурсы по инженерным сетям до границы раздела, которая очерчена внешней стеной многоквартирного дома. Внутри многоквартирного дома ответственность за состояние инженерных сетей несет управляющая компания (и/или ТСЖ). Возникает ситуация, когда ресурсоснабжающая и сетевая организации исполняют добросовестно свои обязанности по поставке коммунальных ресурсов в жилой дом, но неудовлетворительное состояние внутридомовых инженерных сетей не позволяет потребителям получать коммунальные ресурсы нужного качества. При этом потребители (домохозяйства) отказываются, на основании Закона Российской Федерации «О защите прав потребителя», оплачивать услуги низкого качества в адрес ресурсоснабжающей организации, которая исполнила свои обязательства добросовестно. Качество потребляемого ресурса было снижено по вине управляющей компании (и/или ТСЖ), обслуживающей внутридомовые инженерные сети. С правовой точки зрения, ресурсоснабжающая организация состоит в договорных отношениях с управляющей компанией (и/или ТСЖ) и отвечает перед ними за объем и качество поставленных коммунальных ресурсов. Управляющая компания (и/или ТСЖ) состоит в договорных отношениях с домохозяйствами, перед которыми она, согласно условий договора и норм ЖК РФ, несет ответственность за качество обслуживания и поставку коммунальных ресурсов. Поэтому у домохозяйств возникают трудности с реализацией своего права на получение коммунальных ресурсов нужного качества, так как домохозяйство в договорных отношениях с ресурсоснабжающей организацией не состоит, но оплату поставленных ресурсов производит именно последней, а не управляющей компании (и/или ТСЖ).

4. Право собственности управляющей компании на коммунальные объекты. В собственности управляющей компании, обслуживающей многоквартирный дом, могут находиться некоторые коммунальные объекты, наличие которых необходимо для поставки коммунальных ресурсов домохозяйствам. Такими объектами могут быть электроподстанции или тепловые пункты (миникотельные), которые тесно связаны с расположенными вблизи них многоквартирными домами. Данный факт затрудняет свободное осуществление права домохозяйств на выбор управляющей компании, так как у новой управляющей компании возникает необходимость внесения арендной платы за эксплуатацию указанных выше объектов в адрес собственника. Данное обстоятельство приводит к увеличению затрат на обслуживание дома новой управляющей компанией, а следовательно, и к увеличению расходов домохозяйств на оплату жилищно-коммунальных услуг.

5. Проблема «двойной оплаты» услуг. В ряде случаев, когда обслуживание общего имущества дома осуществляется не только управляющей компанией (и/или ТСЖ), но и специализированными фирмами (например, эксплуатация лифта, вывоз твердых бытовых отходов), возникает ситуация, когда домохозяйства оплачивают одни и те же услуги в адрес разных организаций – обслуживающей фирме и управляющей компании. Данная проблема возникает из-за отсутствия четкого разграничения сфер деятельности обслуживающих фирм и управляющей компании. Кроме того, из-за недостатка нужной информации, сами домохозяйства не в состоянии понять, кому оплачивать конкретный вид услуги.

Кроме указанных выше, существует ряд других проблем взаимодействия домохозяйств и управляющей компании (ТСЖ), такие как:

- мошенничество со стороны управляющей компании при осуществлении посреднической деятельности,
- необоснованное повышение тарифов на обслуживание со стороны управляющей компании,
- недостаточное нормативно-правовое регулирование деятельности управляющей компании,
- разграничение права собственности на жилые помещения в многоквартирном доме между собственниками квартир и органом местного самоуправления, что затрудняет принятие решение о выборе управляющей компании,

- необходимость участия всех домохозяйств в общем собрании по вопросам управления домом,
- сложности с пересчетом тарифов за некачественно оказанные жилищно-коммунальные услуги.

Юридическая ответственность участников процесса получения жилищно-коммунальных услуг. Ресурсоснабжающая организация несет ответственность по договору на поставку коммунальных ресурсов домохозяйствам перед управляющей компанией (и/или ТСЖ), а также за нарушение норм специальных законов о поставке коммунальных ресурсов домохозяйствам. Нарушение нормативов обеспечения населения коммунальными услугами является административным правонарушением, согласно Кодексу Российской Федерации об административных правонарушениях (ст. 7.23).

Управляющая компания (и/или ТСЖ) несет гражданско-правовую ответственность перед домохозяйствами согласно договора об управлении многоквартирным домом и за невыполнение норм ЖК РФ. Административная ответственность перед органом местного самоуправления возникает в случае осуществления деятельности без государственной регистрации (ст. 19.20. КоАП РФ).

Гражданско-правовая ответственность домохозяйств возникает перед управляющей компанией (и/или ТСЖ) за неоплату в полном объеме потребленных жилищно-коммунальных услуг. Нарушение правил пользования жилыми помещениями влечет административную ответственность домохозяйств перед органом местного самоуправления (ст. 7.21 КоАП РФ).

Данная статья предоставляет возможность дальнейшего научного исследования способов решения указанных выше проблем взаимодействия домохозяйств и управляющих компаний в вопросах предоставления качественных жилищно-коммунальных услуг с наименьшими затратами для населения.

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Burdenko E.V.,

*Plekhanov Russian University of Economics,
Honorary Worker of Higher Professional Education,
Candidate of Economic Sciences,
Associate Professor of Political Economy,*

Fedotova A.V.,

*Plekhanov Russian University of Economics,
Student of the Financial Department*

The influence of integrative group levels on solution of the free riding problem

Modern economic science is developing dynamically, trying to find solutions to different contradictions. Among these contradictions the contradiction between the concept of rational human behavior and free-riding is emphasized.

Lots of consumer's interests collide, when people are using the goods that are in joint use. Such goods in economic theory has identified as public goods. The main characteristic of these goods is that they equally can be used by each participant of public relations. However, there are some limitations in using public goods - equal contributions to its development and equitable use are required. Not everyone is willing to give his own funds to create a product for public consumption, when they can avoid making payments and take advantage of these opportunities completely for free. The described situation creates free riding problem in society, where the free rider is individual who wants to use public goods but is not willing to bear financial costs for the production and maintenance of them [1].

The desirable case of non-payment and non-providing any important public work is the most common particularly everywhere and it is inefficient by economic theory. The efficient (by Pareto) case includes only those situations in which the welfare of participants of social relations is not rising by the rising expenses of all the others. Thus, it is identified that the free-riding problem is highly inefficient for society and should be eliminated.

Among the mechanisms of regulation of this phenomenon state actions are distinguished: imposition of fines, civil penalties for the identified free riders. Howev-

er, the experts claim that such measures largely only regulate the processes of public goods provision, but do not eliminate the free riding problem [2].

Totally different solution was offered by foreign scientists. Specialists of the University of Zurich claim the fragility of the highlighted problem because of its full resolution by civil society itself. This society with established values and high integrative levels easily displace the individual with deviant behavior, making a free rider act according to the majority. The basis for restoration of the balance in society is the negative emotions of civil society toward free riders, as the majority contribute financially to the maintenance of public goods and restrict free riders from using these goods. Thus, people are willing to spend additional funding, that is not related to public goods, to limit free rider's access to public good. Restrictions can be both material and monetary expressed: the installation of the barrier on car parking, services of security guards and others [3].

It would seem impossible to induce someone to spend a large sum of money, to act in an economically unprofitable way. However, the confirmation can be found not only in scientific literature. In an interview with the mayor of Bogotá Antanas Mockus also shows the desire of the citizens (about 65 thousand families) to pay extra tax contributions to improve the welfare of Colombia's capital. On collected money libraries were built, electricity and water were provided to areas where needed, transport infrastructure was improved. Antanas himself explains it as follows: "...people are willing to help the government, to assist the authorities if they trust them". In other words, the mayor noticed that the people, who are confident that funds will be spent as intended, ready to act irrationally according to classical economic theory. Similarly, we can imagine a solution to the free riding problem in this context [4].

The relevance of the stated problem is indisputable: the possibility of systematization of social behavior in conflict with economic fundamentals and the development of new patterns are priceless. However, any assumptions must be supported by evidence, scientific research. In this case, the experiment must be obviously carried out to confirm main results of the sources above.

Microeconomic model representing two groups with different integrative levels (a group of previously familiar and unfamiliar group members) was originally created for an experiment. All the conditions were created for obtaining the most complete results of the research. For instance, among these conditions there are detected

transparent and anonymous ways for nominating their opinion in different stages of the experiment, possibility of investing money. Moreover, the emotional background of the group was estimated during the experiment: each participant independently rated their negative emotions on the proposed scale. The experiment was maximally adapted to the interests of selected groups and the individual participants. Most of the participants were selected from students, so the issues of the educational process and related activities were discussed during their participation. In order to obtain the most exact results, the experiment was divided into four sessions by different types of groups (group of previously known and unknown participants with the possibility of anonymous and transparent nomination of votes). Each session was held in two stages to separate the experiment in time and graduate the integrative levels. During the experiment the participants were offered the specific situations, their contributions to the implementation and organization were recorded, and then, when the free rider was detected by the group members, contributions to the restriction of free rider's activity and negative emotions of the group members were also measured.

The results of the experiment fully confirmed the previously stated facts. The compliance of integrative group level to the contributions of participants was stated. The more cohesive the group was in the first part of the experiment, the more were contributions to the limitation of the activity of free rider. Groups with weak cooperation in the first part of the experiment invested more in the second part. Such regularity is explained by social scientists. Scientists call naturally formed groups as conditional groups. These types of groups consist of people of one category connected with professional skills, age. They can be characterized as fragile one as they are able to easily disintegrate or to increase integrative levels based on similarities. In the experiment a common feature is free riding problem, through which the participants become more united and so they make larger funds in the second part.

In addition to the facts above, there has been identified the compliance of the size of the deposits generated by participants to negative emotions. The more intense the emotional background of the group was the more the size of the contributions of its participants was. The same pattern was identified for each participant.

The versatility of the free riding problem was identified during the analysis of the results. In addition to the above standard behaviors a new model of social behavior has been identified. It is called full free riding, a situation in which all the members

of the group are not ready to invest in the public good, as if it was irrational to invest in goods in which they were not interested at all.

Created experimental conditions potentially could meet in life. You cannot predict where it may appear, however it can be claimed that it can generate a strong enough negative reaction in society and these responses can cause in a civil society the desire to restore the balance. It is important to note that experimentally created microeconomic model can be represented in different scales (micro-, meso- and macrolevels) that can solve the problem of the free riding and the efficient provision of public goods.

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Tukhtabaev Jamshid Sharafetdinovich,

Samarkand State University,

Senior Scientific Researcher – Applicant

Analysis of the parameters of the efficiency of labour

Тухтабаев Жамшид Шарафетдинович,

Самаркандский государственный университет,

старший научный сотрудник-соискатель

Анализ показателей эффективности труда

Эффективность труда - производительность совокупного труда (результативность затрат труда). Чаще всего понятие «производительность» является более узким, чем понятие «эффективность», но показатель производительности труда не отражает всего спектра продуктивности и результативности труда, в частности он не учитывает качество труда и, кроме того, необходимость рационального использования трудовых ресурсов.

Эффективность труда выражает степень результативности труда при наименьших трудовых затратах. Эффективность труда в отличие от производительности труда выражает не только количественные, но и качественные результаты труда. Другим важным достоинством показателя эффективности труда является отражение в нем экономии трудовых ресурсов [1, с. 123].

Эффективность труда будет тем выше, чем выше производительность труда и чем меньше затраты труда при необходимом качестве работы. Для предпринимателя важно не только то, каким был уровень выработки работника в единицу времени, но и то, какими трудовыми затратами это было обеспечено. Трудовые затраты измеряются численностью работников и затратами на оплату труда. И то, и другое может измеряться временем работы. Поэтому при анализе эффективность труда рассматривается как затраты труда в единицу времени, но не просто времени, а с учетом его структуры.

Таким образом, эффективность труда характеризует уровень использования трудовых ресурсов с учетом выработки, затраченного времени и каче-

ства работы, а также затрат труда в расчете на одного работника. Эффективность труда характеризует баланс социальной и экономической эффективности через призму трудовых отношений на основе принципа экономного расходования рабочей силы.

Признавая важность показателя эффективности труда, специалисты, однако, еще не пришли к единому мнению о методике расчета показателя. Считается, что наряду с основным, обобщающим показателем эффективности труда могут рассчитываться отдельные, частные показатели [2, с. 448].

Дополнительными частными показателями эффективности труда могут быть: производительность труда и ее изменения; квалификация работника; качество работы; экономия живого труда; рациональное использование рабочего времени; экономия средств на заработную плату.

Производительность труда - это показатель плодотворности целесообразной деятельности работников, которая измеряется количеством работы, сделанной в единицу времени. Производительность труда характеризует способность работников создавать своим трудом товары и услуги за час, смену, неделю, месяц или год. Именно повышение производительности труда является наиболее важным условием изменения производительности труда, обеспечивающим рост объемов материального производства и доходов.

Квалификация работника - это подготовленность работника к профессиональной деятельности для выполнения работ определенной сложности в рамках профессии, специальности, специализации. Квалификация работника является составляющей стандарта профессионального образования и характеризуется степенью и уровнем. Существенными характеристиками уровня квалификации работника являются: объем и качество знаний и умений; способность рационально организовать и планировать работу; способность быстро адаптироваться при изменении техники, технологии, организации и условий труда [3, с. 416]. К таким признакам могут быть отнесены: объем специального и общего образования, стаж у работы по данной профессии, умение выполнять определенные операции, управлять механизмами и приборами, соответствие личностных данных работника профессиональным требованиям, мера ответственности за порученную работу и т.д.

Изучение качества работы на предприятии необходимо в целях полного оперативного управления. Это крайне необходимо для текущего анализа каче-

ства работы. Качество работы - обобщающая характеристика индивидуальной и коллективной деятельности работников. В качестве работы отражается качество живого труда, уровень организации производства и управления, профессиональное мастерство работников, состояние плановой, производственной и технологической дисциплины. Наиболее полно об этом показателе и его динамике можно судить по общему объему выпуска продукции, величине прибыли, производительности труда и его эффективности. Обобщенным экономическим результатом улучшения качества работы во всех звеньях народного хозяйства служит рост эффективности общественного производства, более полное удовлетворение потребностей членов общества.

Проблема экономии живого труда вообще, а на современном этапе развития нашей экономики в особенности, является чрезвычайно важной. Решать её возможно лишь на основе неуклонного повышения производительности труда в результате роста его фондовооруженности. Чем больше экономия живого труда, тем выше его производительность и выше доля прироста продукции. Показатель экономии живого труда весьма наглядно показывает, насколько использованы резервы роста производительности труда.

Экономию живого труда можно выразить так: количество живого труда, затрачиваемое при постоянной его интенсивности на производство единицы продукта труда, уменьшается по мере роста объема произведённой продукции и стремится к предельному значению, ограниченному возможностями человека.

Проведенные исследования свидетельствуют о том, что на производственных предприятиях в среднем около 30 процентов всех резервов роста производительности труда составляют резервы лучшего использования фонда рабочего времени. Рабочее время - время, в течение которого работник в соответствии с правилами внутреннего трудового распорядка и условиями трудового договора должен исполнять трудовые обязанности, а также иные периоды времени. Время необратимо, его нельзя накопить, передать, оно проходит безвозвратно. Поэтому любой работник, желающий улучшить свою работу, должен периодически анализировать уровень использования и потери времени. Оценка эффективности использования рабочего времени на основе определения производительного времени в каждой операции позволила выявить резервы повышения производительности труда, обусловленные сокращением потерь рабочего времени.

За свой труд - выполненную работу, произведенную продукцию - работник получает заработную плату. Это вознаграждение за его труд, признание обществом необходимости данного труда, приносящего социально-экономический эффект, что выражается в получении работодателем дохода (прибыли). Роль заработной платы выражается в ее стимулирующем воздействии на человека: размер оплаты, порядок выплаты и элементы организации обычно развивают у человека личный интерес к труду. Таким образом, заработная плата выполняет двоякую роль: с одной стороны, это плата за результат труда, с другой - стимул к труду [4, с. 281].

Оплата труда необходима работнику для восстановления затраченной в процессе труда энергии, а также увеличения потенциальных возможностей своей рабочей силы.

Как уже отмечалось, заработная плата выполняет двоякую роль - как плата за труд и как стимул к дальнейшему труду. Каждый элемент ее организации является стимулирующим: оклад в основном стимулирует рост квалификации работника, доплаты и надбавки - работу в особых условиях, а премии - высокую результативность труда.

Эффективное использование выше рассмотренных показателей дает возможность повышения эффективности труда в производственных предприятиях.

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Kseniya Litvishchenko,

Smolensk Branch of REU of G.V. Plekhanov

Cand. of Ec. Sc., Senior Instructor,

Chair of Management and Customs Affairs

Labour market research: regional aspect

In the conditions of market economy the sphere of employment has influence practically on all aspects of society: the standard of living of the population, economic processes, education, changes in stratification structure of society, social and demographic structure, social values and consciousness.

Relevance of the subject of research is that employment of the population in modern Russia becomes an important problem which needs government regulation.

The purpose of basic research is development of system approach to management of employment of the population in the area on the example of Smolensk region.

Employment centers of the population in the region act as the object of research. The subject of research is regional labor market.

Among the main results are the following:

- the condition of labor market in the region was analyzed;
- influence of employment of the population on social and economic development of the region was estimated;
- strategic approaches to management of employment from regional authorities for the purpose to increase the level of social and economic development of the territory were developed.

The situation in labor market of Smolensk region during 2011-2013 was formed under the influence of economic and social situation in the area.

In 2012, in comparison with basic 2011, the index of production and services of the key branches of economy was 96,7% [1], in 2013 this indicator was 98% [2].

In social area it was noted that the nominal average salary per month grew in comparison to the same period of 2011 for 9,8%, the real wage – grew up, too, but in smaller volume - for 2,12%, in 2013 growth for 1,9% was noted, too [2].

Unfortunately, there is no positive information on a demographic situation. On the 1st of January, 2013 the population of the region was 975,2 thousand people, there was a reduction of the population for 5,3 thousand people, or for 0,05%.

In the total number of the population the share of people of working-age fluctuates within 62-65% in 2011 - 2013.

Region labor market of 2011-2013 was characterized by the following features:

1) the number of employed was less, than the number of workers, leaving from the enterprises and the organizations. Only for 89% leaving of workers was compensated by reception of new shots at the enterprises and in the organizations since the beginning of year. 78% was the number of the workers leaving at own will; by agreement of the sides - 2,7%; in connection with reduction of the personnel – 3,7%; 19,8% was made by staff turnover in 2012;

2) the number of the released workers remained at the level of 14-16% from 2011 to 2013;

3) in 2013 2,0% of payroll number of workers were busy in the mode of part-time at the initiative of the employer, 3,5% - under the agreement between the worker and the employer. It is a result of an unstable condition of all branches of economy which has impact on scales of a part-time employment.

All this testifies to the existence of the hidden unemployment.

The unemployed registered in the regional employment center of the population spent about 4,5 months to find a new job.

There is a differentiation in economic condition of the region. The salary differs much depending on the branches of economy. The imbalance between labor demand and its offer was followed by existence of a part-time employment, aggravating with all problems which are connected with unemployment.

The general unemployment rate was 4,6% to the number of economically active population on the 1st of November, 2013. In comparison with 2012 was recorded reduction for 0,1%. In absolute measures 27,7 thousand people in Smolensk region are unemployed. In the regional employment service the level of registered unemployment also count. In Smolensk region its value was of 0,9%.

In labor market the supply exceeds demand. Employers of Smolensk region show demand for working professions of various spheres of economic activity. Specific weight of working professions in cumulative demand in labor market - 67%. A share among the addressed is only 40,0%. One more peculiar feature in labor market

is that among the unemployed there are a lot of people with secondary and higher education (80%). The processing productions offered the largest number of vacancies – 30,9%, building sector – 15,3%, wholesale and retail trade – 16,6%.

20% of the unemployed registered in the employment center are people who didn't work anywhere before. Demand for them in labor market is practically zero. There is also one more category of the unemployed whom it is difficult to find a workplace - people having professions of unskilled workers.

The price and the supply of work are in direct proportional dependence among themselves. One more feature of the labor market concerns payment. Branch levels of salary show high extent of differentiation. A salary in the industry is above average regional level for 1,19 times, on transport for 1,6 times, in financial, credit, insurance, pension institutions – for 2,2 times. The salary in healthcare institutions, educations, cultures, trade and public catering is lower than regional level. We analyzed this indicator in relation to higher education institutions of Smolensk region.

The average salary in Smolensk region in 2013 was 19400 rubles [2]. Its values fluctuate from 66% in Smolensk state academy of physical culture, sport and tourism to 190% in branch of National research university "MEI" in Smolensk and up to 220% in Smolensk branch of Moscow financial academy.

In regional labor market one more negative feature was noted. Workers of the same professions receive different salary at different enterprises, in other words the principle of solidary salary is broken.

It is possible to make a conclusion that labor market in Smolensk region is far from stability. The main reason for instability is not the lack of free workplaces which are available. There is a deficiency of workplaces which can offer the person worthy income and continuous employment.

People, who can't find job by themselves to low qualification or absence of the seniority remain major customers of employment center of the population.

Besides, we can add citizens of pre-retirement age and separate categories of citizens (youth aged from 16 till 29 years, the women with children, the disabled people, refugees and displaced people released from places of imprisonment and others).

On the 1st of December, 2013 the level of registered unemployment in Smolensk region was 5,2% (economically active population of Smolensk region – 538 600 people) [2].

The analysis of the situation developing in region labor market in the current year shows that the problem of employment tends to improve and is reflected on the regional economy. During 2013 year 212 enterprises and the organizations informed of decrease in economic intensity [2].

Labor market shows discrepancy between professional structure of the unemployed population and structure of vacant workplaces.

The employment centre registered great demand for workers of metalworking, machine-building, construction and repair and construction professions, operators, drivers of the industrial equipment and collectors of products, drivers and drivers of the mobile equipment, and lack of vacancies of workers of forestry, trade and public catering, transport and communication.

In total number, working in the organizations of Smolensk (without subjects of small business) 111,4 thousand people (95,9%) work as permanent members of staff, 116,2 thousand people have part-time job.

Part-time employment is noted in the organizations of the processing productions in which 4,9% of workers of payroll number worked part-time at the initiative of the employer, 3,1% - under the agreement between the worker and the employer, and 1,9% of workers were in idle time because of the reasons which don't depend on the employer and the worker. In the organizations of transport and communication 3,1% of part-time work was registered in coordination between the worker and the employer.

The amount of the vacancies of Smolensk declared by employers makes now 4 216 units while the demand is 1 696 citizens.

The most demanded vacancies by types of economic activity:

- construction of buildings (132),
- production of aircraft, including space (116),
- production of household electric appliances (112), etc.

Now in 2013 the intensity coefficient (a ratio of number of the unemployed citizens, and declared in job center of the population of vacancies) made 0,46. The provided vacancies are not always filled. Professional qualities of the unemployed don't conform to qualifying standards of employers.

The offered earnings can't be below average earnings of the citizen estimated for the last three months in the last place of work. In labor market discrepancy of supply and demand of labor continues to remain.

Experts of «Employment centers of the population» of the region hold events for employment of the population and social support of the unemployed.

27 700 people showed willingness to be registered in search of suitable work.

The intense social and economic situation in Smolensk region is observed. The employment centers pay special attention to professional development and re-training as one of the priority directions in the sphere of employment of the population.

The direction of unemployed citizens on a professional training is carried out taking into account inquiries of employers or to the certain workplace.

The employment centers use public and temporary jobs widely. The aim of public work is to create conditions for material support of the unemployed citizens. 65 contracts for employment of 470 people were signed. 269 people, including 145 unemployed citizens took part in public works in January – October of 2013. 488,5 thousand rubles were allocated to finance of material support, 359,7 thousand rubles (73,6%) were spent for 10 months of 2013.

Some important problems in the sphere of employment of the population at the regional level demand special attention:

1. Problem of shortage of experts of working professions.

About 70% of graduates plan enter higher educational institutions. As a result we can observe increase of demand for higher education and fall of interest in primary professional education. Today it is necessary to promote working professions, especially through mass media.

2. A problem of closer interaction of employers with Employment centers.

Only about 52% of the enterprises systematically give vacancies to Employment centers. Employers need to specify concrete functions and employment service will know whom to direct on these vacancies. In case of refusal the unemployed from the offered work, it is necessary to specify this reason, but not lack of vacancy or lack of due qualification at the competitor.

3. Problem of employment of physically disabled people.

For enterprises the employment of disabled people becomes a source of additional expenses, and a reason for refusal in employment. Today the question of situation in labor market in the region for disabled people remains intense. The number of able-bodied disabled people in the area was 19,4 thousand people.

4. A problem of youth labor market in the region.

In 2012 every third unemployed was at the age of 16-29 years. As the hidden forms of unemployment are not considered by employment services, it is possible to assume that official indicators of youth unemployment are strongly underestimated.

One of the directions of the Employment center is the organization of temporary employment for jobless citizens aged from 18 till 20 years experiencing difficulties in job search.

5. A gap between labor supply and demand.

The gap between labor supply and demand make difficult employment for graduates of educational institutions (especially commercial sector of professional education). Smolensk labor market needs young specialists of working professions. Also qualified specialists in new professions are required: logisticians, providers, designers, etc. The system of professional education continues to let out experts such as: lawyers, accountants, economists, but there are too many them in economics already.

Problems of labor market, employment and unemployment are one of the most important social and economic problems. In the conditions of market economy these problems are shown especially considerably. In our country there are some problems - features of formation of labor market, employment and unemployment, regulation problem in the labor market. Regional aspects of unemployment remain not enough studied.

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Rozhkov Leonid,

Belarusian State Technological University,

Professor, Doctor of Agricultural Sciences, the Department of Forestry

Conceptual approaches to improving of cutting and regeneration of forest

Рожков Леонид,

Белорусский государственный технологический университет,

профессор, доктор сельскохозяйственных наук, кафедра лесоводства

Концептуальные подходы к совершенствованию рубок и возобновления леса

Многообразные функции леса общеизвестны. Тем не менее, до сих пор его основной ценностью остается получение незаменимого естественного полимера – древесины. Заготовка древесины осуществляется посредством рубок леса. Рубки спелого леса, как известно, называются главными рубками, или рубками главного пользования лесом. Посредством рубок главного пользования заканчивается процесс лесовыращивания. В то же время, после рубок начинается новый цикл процесса лесовыращивания, процесса лесовосстановления и формирования молодого поколения леса.

Основополагающий принцип главного древесинопользования и последующего лесовосстановления – устойчивое управление лесной экосистемой на этапе «рубка – возобновление леса». Этот принцип исходит из современной лесной парадигмы «устойчивого управления лесами в рамках экосистем». Экосистемный подход к рубке леса предполагает отказ (в отдаленной перспективе – полный) от сплошных рубок главного пользования в пользу несплошных, обеспечивающих непрерывное исполнение лесом средообразующих функций. Экосистемный подход к возобновлению леса предполагает ориентацию на максимально возможное сохранение естественной лесной экосистемы. В случае радикального разрушительного воздействия, что имеет место в процессе вы-

рубки главного элемента лесной экосистемы – древостоя, необходимо максимально использовать генетический ресурс самовозобновления исторически сложившейся в данных природных условиях лесной экосистемы.

Постоянное сохранение средозащитной функции леса достигается лишь при определенной степени сомкнутости лесного полога (минимальной средозащитной полноте). Средозащитная функция сохраняется достаточно при полноте древостоя не менее 0,6. В этой связи для высокополнотных спелых древостоев перед первым (подготовительным) и вторым (обсеменительным) приемами постепенных (несплошных) рубок допускается наличие подроста в минимальном количестве, поскольку средозащитная функция леса выполняется древесным пологом. Третий (осветительный) и четвертый (окончательный) приемы 3–4-х приемной и соответствующие им первый и второй приемы 2-х приемной постепенных рубок приводят к снижению полноты древостоя до 0,3–0,4 (третий прием) и полному удалению материнского древостоя (окончательный прием). На этих этапах рубок выполнение средозащитной функции воспринимает на себя частично или полностью подрост и молодое поколение леса.

Постепенными рубками должно быть обеспечено на соответствующих этапах рубки сохранение подроста и сопутствующее возобновление (приведенные к условно крупному подросту) хозяйственно ценных пород в количестве, не менее указанного в табл. 1.

Кафедрой лесоводства созданы за последние пятьдесят лет десятки опытных объектов рубок леса, в основном несплошных рубок, в результате которых достигнуты цели постоянного поддержания средозащитной функции лесных земель и естественное возобновление целевых лесообразующих видов, в основном сосны и ели [1].

Но обеспечить возобновление естественным путем на всех лесосеках после рубки спелого древостоя невозможно. Особенно это касается сосновой формации, преобладающей в лесном фонде Беларуси по занимаемой площади. Сосна – светолюбивый древесный вид и ход ее естественного возобновления под пологом древостоев подавляется теневыносливым подростом ели, а на последних приемах постепенных рубок – более быстрорастущими и устойчивыми к условиям микроклимата изреженного древостоя или вырубке мелколиственными видами (березой, осинкой, ольхой серой). По этой и другим причи-

Таблица 1. Нормативы количества подроста, обеспечивающего средозащитные функции леса при производстве постепенных рубок

Порода	Группы типов леса	Минимальное количество условного крупного подроста по приемам рубки, тыс. шт/га				
		перед подготовительным	перед обсеменительным	перед осветительным	перед окончательным	после окончательного
Сосна	вересковая	не имеет значения	самосев или подрост в количестве 0,5	≥ 3	≥ 8	≥ 6
	брусничная, мшистая, орляковая, черничная, кисличная			≥ 3	≥ 7	≥ 5
Ель	брусничная, мшистая, кисличная, черничная, снытевая			≥ 3	≥ 7	≥ 5
	во всех типах леса			≥ 2	≥ 4	≥ 3

нам при лесовосстановлении сосновых древостоев в Беларуси преобладает искусственный метод – создание лесных культур. Следствием такого подхода становится угроза повсеместной замены «сосны дикорастущей» на «сосну культурную». В перспективе следует ожидать снижение устойчивости сосновых насаждений, что усиливается высокими в условиях Беларуси антропогенными нагрузками на лес и погодно-климатическими изменениями.

На примере древостоев суходольных типов леса (сосняков вересковых, брусничных, мшистых, орляковых, кисличных и черничных) Брестской и Могилевской областей Беларуси (табл. 2) можно сделать вывод, что сосняки естественного происхождения занимают 49,8% (412 265,6 га) и искусственного - 50,2% (416272,1 га). Казалось бы, причина беспокойства отсутствует. Но паритетная представленность сосновых культур и сосняков естественного возобновления сегодня нарушена высокой представленностью последних в приспевающих и спелых возрастных группах (IV-й класс – 68,1%, ≥ V – 94,1%) и крайне низкой среди молодняков.

Таблица 2. Распределение сосновых насаждений суходольных типов леса Брестской и Могилевской областей по классам возраста и происхождению

Классы возраста	Сосновые насаждения Брестской и Могилевской областей						
	Всего		в том числе по методам воспроизводства				
			лесные культуры		естественного возобновления		
	га	%%	га	%%	га	%%	в % от площади класса возраста
I	78255,3	9,5	62765,3	15,1	15490,0	3,8	19,8
II	104651,1	12,6	87936,1	21,1	16715,0	4,0	16,0
III	334882,7	40,4	194165,6	46,6	140717,1	34,1	42,0
IV	204339,0	24,7	65168,1	15,7	139170,9	33,8	68,1
≥ V	106409,6	12,8	6237,0	1,5	100172,6	24,3	94,1
ΣИтого	828537,7	100,0	416272,1	100	412265,6	100	49,8

В молодняках сосновые культуры занимают в первом классе возраста 80,2% и втором 84,0% общей площади сосняков в этих классах возраста. По нашему мнению, соотношение в системе «лесные культуры – естественное происхождение» достижимо в пропорции «66 : 34». Эта пропорция, безусловно, потребует объективной доказательной базы. Наше предложение в значительной мере обусловлено ходом естественного возобновления сосны в республике, требованием Лесного Кодекса о максимальном трехлетнем сроке лесовосстановления не покрытых лесом земель, что не всегда можно обеспечить методом естественного возобновления, и высокой востребованностью народнохозяйственного комплекса в воспроизводстве именно сосновых древостоев. Указанная норма «66 : 34» по нашему предложению принята в новом Стратегическом плане [2, с. 20]. Реализация этой нормы потребует значительных усилий лесоводов республики. Пути ее решения в условиях складывающегося на 2015–2030 гг. лесосечного фонда следующие.

Естественное возобновление сосновых молодняков возможно в следующих условиях:

- после несплошных рубок в сосняках вересковых, брусничных, орляковых, черничных, мшистых, долгомошных, обеспеченных подростом сосны до начала главной рубки; объем – 3,5% площади спелых древостоев всех пород, включаемых в рубку;

– посредством стимулирования и хода сопутствующего возобновления в процессе трех-четырёхприемных постепенных рубок с мерами содействия естественному возобновлению в высокополнотных сосновых древостоях, не имеющих подроста до начала главной рубки; объем – 16,4% площади спелых древостоев всех пород, включаемых в рубку;

– сохранением соснового подроста при сплошных рубках главного пользования спелых насаждений, как правило низкополнотных; объем – 0,12% площади спелых древостоев всех пород, включаемых в рубку.

Эколого-экономическая оценка результатов главной рубки и лесовосстановления является важным звеном обоснованного решения по воспроизводству сосновой и других лесных формаций.

Отказ от применения способов несплошных рубок при освоении лесосечного фонда чреват потерей прибыли лесохозяйственной отрасли в объеме от 8 до 11 млн. дол. США ежегодно. Прибыль обеспечивается сокращением расходов на лесовосстановление вырубок главного пользования за счет сохранения имеющегося до рубки подроста главных пород для одной части спелых насаждений и стимулированием его появления посредством мер содействия в процессе проведения приемов постепенных рубок для другой части спелых насаждений, планируемых к освоению несплошными рубками.

Отказ от применения планируемых объемов естественного возобновления с мерами содействия в пользу создания лесных культур чреват экологическими рисками в части потери естественного генофонда $\approx 20\%$ древостоев естественного происхождения. Это отрицательно скажется на устойчивости насаждений сосновой, частично еловой и дубовой формаций.

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Rozhkov Leonid,

*Belarusian State Technological University,
Professor, Doctor of Agricultural Sciences, the Department of Forestry*

Marsh woods of the Belarusian

Рожков Леонид,

*Белорусский государственный технологический университет,
профессор, доктор сельскохозяйственных наук, кафедра лесоводства*

Болотные леса Беларуси

Болотные леса сегодня являются предметом особого внимания ученых и широкой общественности как уникальная экологическая система, обладающая щедрым богатством растительных ресурсов и биологическим разнообразием, являющаяся огромным естественным фильтром пресной воды и важным звеном депонирования углерода.

Особенно значима роль болотных лесов для Беларуси в условиях широкомасштабной осушительной мелиорации, охватившей порядка 75% площади естественных болот и избыточно увлажненных лесных земель. Это влияет на гидрологический режим всей территории республики. Возрастающие объемы строительства дорог в лесном фонде Беларуси повышают доступность ресурсов болотных лесов, интенсивная эксплуатация которых может привести к нарушению биологического разнообразия и баланса углеродных потоков («эmissions-стока») болотных лесов.

Исследования ученых о результатах осушительной мелиорации лесов и болот в Российском Нечерноземье и Белорусском Полесье [1, 2, 3, 4] свидетельствуют о неоднозначных оценках эффекта осушения и целесообразности осушения болотных лесов.

Индустриальная эмиссия парниковых газов, среди которых преобладает диоксид углерода, является причиной возможных изменений климата. Поток этой эмиссии сегодня во многом компенсируется фотосинтезом естественных

поглотителей углекислого газа, в первую очередь, лесных и болотных экосистем.

Исследование ресурса болотных лесов Беларуси, оценка их влияния на биологическое разнообразие, водный режим территории и углеродные потоки в лесах, поиск рациональных направлений лесопользования являлись целью настоящей статьи.

Методические подходы, использованные при исследовании, состояли в следующем. Характеристика болотных лесов установлена по данным лесного кадастра [6]. Расчет углеродного бюджета выполнен на основе утвержденной методики [7]. Применен конверсионный подход при оценке содержания углерода, используемый в Национальном кадастре парниковых газов Росгидромета [8] и отвечает рекомендациям МГЭИК [9]. Средняя глубина торфа принята посредством усреднения этого показателя из пробных площадей Л.П. Смоляка [10] и материалов обследования торфяного фонда [11]; данные, безусловно, подлежат уточнению.

Сукцессия лесоболотной экосистемы выявлена на основе сравнительного анализа материалов базового лесоустройства лесохозяйственных учреждений Гродненского государственного производственного лесохозяйственного учреждения (ГПЛХО) за 1963 и 2013 гг. Анализу подлежали динамика болотных лесов в разрезе типов болот, типов леса и лесных формаций.

Динамика речного стока в водосборе Немана исследована нами на основе информации о среднемесячных расходах воды по гидрологическому посту р. Неман – Гродно за период 1950–2012 гг. Площадь водосбора составляет 33 600 км².

Болотные леса Беларуси занимают 1730,5 тыс. га покрытых лесом земель с общим запасом 245,83 млн. м³. Преобладают болотные леса низинного типа (82,7%) серий типов леса папоротниковой (29,9%), осоковой (26,5%), таволговой и крапивной; долгомошная (болотных лесов) серия типов переходных болот также значительная (10,3% от общей площади болотных лесов).

Сосновая формация болотных лесов занимает 1,9% покрытых лесом земель; наиболее представлены березовая (39,4%) и черноольховая (34,5%) формации. Средний бонитет болотных лесов – 2,8, средняя полнота – 0,63. Молодняки занимают 22,3%, средневозрастные – 43,8, приспевающие – 17,8 и спелые и перестойные – 16,1% покрытых лесом земель. Средний запас на 1 га

болотных лесов 142 м³, в том числе ельников – 189, черноольшаников – 158, березняков – 189, сосняков – 91 м³ на 1 га.

В лесном углеродном пуле (2743,6 млн. т С, включая мертвую древесину и лесную подстилку) на лесоболотный пул приходится 63,6%, причем законсервированный благодаря болотным лесам республики углерод составляет 43,2%. Заметим, что в лесах по суходолу весь депонированный углерод (100%) сосредоточен в зоне обмена (круговорота) между живой и неживой компонентой лесной экосистемы. В этом состоит важная функция белорусских болотных лесов – консервация атмосферного углерода в виде торфа.

В малый биологический круговорот вовлечено 450,6 млн. т С в слое почвы ≤ 30 см болотных лесов. Это ближайший резерв органического углерода почвы для вовлечения в биокруговорот при ускоренной минерализации почвенного гумуса, например, после лесосошения или вырубке древостоя и т. п. В этой связи предпочтительна сдержанная эксплуатация болотных лесов, поскольку в первую очередь в звено эмиссии включается углерод фитомассы, детрита и верхнего слоя почвы.

В болотных лесах накоплены значительные древесные запасы – 245,83 млн. м³. Заготовка древесины в них затруднена по причине недостаточной транспортной доступности. Рентабельность лесовыращивания в неосушенных сосняках верховых болот и мягколиственных насаждениях переходных и низинных болот крайне низкая, скорее отрицательная [12]; такие болотные леса (≈ 1,3 млн. га) занимают около 77% их общей площади. В нерентабельных для лесозаготовок болотных лесах за счет продажи углеродных квот текущего прироста можно получать ежегодно значительный доход. При этом также обеспечивается сохранение биологического разнообразия болотных лесов. Такой подход к организации лесопользования в болотных лесах Беларуси может заинтересовать международные экологические фонды и способствовать доступу республики на международные рынки свободных углеродных квот.

За истекшие пять десятилетий после осушительной мелиорации в водосборе р. Неман произошли существенные изменения в структуре болотных лесов: практически исчезли леса на болотах верхового типа, значительно увеличилась доля лесов на болотах низинного типа. Изменилась типологическая структура лесов: исчезли ельники и осинники сфагновые, березняки багульни-

ковые, сосняки папоротниковые, черноольшанники и осинники приручейно-травяные, березняки таволговые; сохранилось до 0,5 % сосняков и березняков сфагновых; зафиксированы новые типы лесов, как ельники осоково-сфагновые, березняки осоково-травяные, черноольшанники касатиковые.

Наблюдения за речным стоком после осушительной мелиорации свидетельствуют об устойчивой тенденции возрастающего снижения суммарного стока воды реки Неман. За истекшие 50 лет среднегодовой сток воды р. Неман уменьшился на 0,33 км³ (минус 5,3 % относительно периода до широкомасштабной мелиорации). Причинами этой закономерности могут быть гидроресомелиорация, иные виды хозяйственной деятельности, ход атмосферных осадков и др.

Болотные леса представлены в 21 (из 30) видах объектов социально-экологического и историко-культурного значения. Занимая 14,06% площади лесных земель водосбора р. Неман, болотные леса занимают 26,4% площади особо защитных участков леса, выделенных в лесном фонде водосбора. Это свидетельствует об их высокой природоохранной ценности. Особенно велико присутствие болотных лесов среди таких объектов, как особо охраняемые части заказников, участки леса с наличием редких птиц, диких животных и дикорастущих растений, вдоль рек, заселенных бобрами, вокруг глухариных токов. Заросли кустарников, как ключевые объекты для экологических коридоров и мест обитания диких животных и птиц, на 95,3% являются болотными растительными сообществами.

Болотные леса отличаются особой структурой и сложным характером управления и использования. В основе выбора направлений рационального использования, охраны и воспроизводства болотных лесов лежит их принадлежность к группам и категориям защитности лесов с учетом гидрологического значения, сохранения лесотипологического разнообразия, доступности и рентабельности лесохозяйственного производства.

В лесах I группы выделяются болотные леса особо охраняемых территорий, в которых устанавливается особо охранный режим охраны и использования (тип хозяйства). В других лесах I группы устанавливается защитно-эксплуатационный тип хозяйства на основе их целевых функций. Пользование древесиной и другими ресурсами болотных лесов не должно сопровождаться

снижением их водоохраной, защитной и санитарно-гигиенической роли, нарушением биологического разнообразия.

В болотных лесах II группы лесное хозяйство имеет эксплуатационное направление. Для него характерны все виды лесопользования, предусмотренные лесным законодательством. Однако и в этом случае при выборе направлений специализации следует учитывать экологическую возможность и экономическую доступность ресурсов болотных лесов для эксплуатации. С учетом этого в болотных лесах II группы лесов могут быть установлены как эксплуатационный, так и защитно-эксплуатационный типы хозяйства.

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Kozaeva Marina,

*All-Russian Institute Genetics and Selection of Fruit Plants,
Senior Researcher, Candidate of Agricultural Science,
Laboratory of New Genetics and Biotechnology,*

Cherenkova Tatiana,

*All-Russian Institute Genetics and Selection of Fruit Plants,
Scientific Worker, Laboratory of Physiology and Biochemistry*

Toxicological activity of the endophytic bacterium

Pseudomonas sp.

Козаева Марина,

*Всероссийский институт генетики и селекции плодовых растений,
старший научный сотрудник, кандидат сельскохозяйственных наук,
лаборатория новых генетических методов и биотехнологии,*

Черенкова Татьяна,

*Всероссийский институт генетики и селекции плодовых растений,
научный сотрудник, лаборатория физиологии и биохимии*

Токсическая активность эндофитной бактерии

Pseudomonas sp.

В последнее время большое внимание уделяется развитию экологически устойчивых сельскохозяйственных систем, в которых продуктивность растений обеспечивается использованием их биологических возможностей при минимальном применении экологически опасных агрохимикатов - минеральных удобрений, пестицидов, регуляторов роста [4;5]. Один из основных способов достижения этой цели - частичное или полное замещение агрохимикатов препаратами симбиотических или ассоциативных микроорганизмов, которые в природе успешно обеспечивают своих хозяев питательными веществами и защищают их от биотических и абиотических стрессов [3].

В связи с этим, очевидна важность расширения исследовательских работ в направлении поиска полезных биологически активных микробов и создания на их основе высокоэффективных и безопасных препаратов [1].

Поиск микробов-антагонистов возбудителей фитопатогенных заболеваний растений обычно начинают с тестирования *in vitro* антагонистической и антибиотической активности коллекционных или выделенных штаммов микроорганизмов, используя патогены в качестве тест-культуры.

Поскольку одним из способов защиты растений является микробный антагонизм [2], целью наших исследований явилось изучение токсической активности бактериальных штаммов, выделенных при тестировании листовых эксплантов различных сортов земляники на питательных средах. В качестве тестера использовались культуры грибов *Fusarium sp.* и *Alternaria sp.*, поскольку комплекс данных грибов наиболее часто встречается на землянике.

Токсическую активность микроорганизмов оценивали методом двойной культуры. Бактерии высаживали крестом в центр чашки Петри, разделяя её на четыре сектора. В середину каждого помещали кусочек агаризированной питательной среды с мицелием гриба *Fusarium sp.* Чашки ставили в термостат и инкубировали при 27°C. Через 3 суток измеряли радиус колоний гриба в направлениях к бактериям (R_1) и к краю чашки (R_2) и вычисляли степень подавления роста грибов (T) по формуле $T=(R_1-R_2)/R_2 \times 100\%$ [6].

Исследование взаимоотношений между возбудителем фузариоза и различных по происхождению бактериями показало, что бактериальные штаммы обладали токсинами с достаточно выраженным фунгицидным и фунгистатическим действием.

Наиболее сильным антагонистическим действием ($T=67,8\%$) в отношении гриба *Fusarium sp.* обладали бактерии, выделенные из листовых эксплантов сортов Урожайная ЦГЛ и Фейерверк. Выделенная бактерия имела слизистую консистенцию, обладала при этом активным ростом и способностью к быстрому накоплению биомассы.

Достаточно выраженной антагонистической активностью ($T=60,1\%$) обладали и бактериальные штаммы, выделенные из листовых эксплантов сортов Редгонтлит, Марышка и Кама.

К действию токсина бактерий, выделенных из листовых эксплантов сортов Рубиновый кулон и Привлекательная, возбудитель фузариоза оказался более адаптированным (Т=47,6%).

Штаммы *Pseudomonas* sp. проявили широкий спектр антагонистического действия и в отношении гриба *Alternaria* sp.

Высокую антагонистическую активность в отношении изолятов *Fusarium* sp. продемонстрировали бактериальные штаммы, выделенные из листовых эксплантов сортов Урожайная ЦГЛ, Фейерверк и Редгонтлит (Т=68,7%).

Умеренной активностью обладали бактерии, выделенные из листовых эксплантов сортов Марышка и Кама (Т=59,7%).

Менее чувствительными изоляты *Fusarium* sp. оказались к токсинам бактерий, выделенных из листовых эксплантов сортов Рубиновый кулон и Привлекательная (Т=42,7%).

Таким образом, среди выделенных бактериальных штаммов зафиксированы бактерии с сильно выраженным фунгицидным и фунгистатическим действием. Эти бактерии и их метаболиты могут прямо или косвенно ослабить действие патогенов за счёт антибиотиков.

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Yaremova Maryna,

Zhytomir National Agroecological University of Ukraine,

Candidate Degree in Economics,

the Department Economics of Enterprise,

Tarasovych Lyudmyla,

Zhytomir National Agroecological University of Ukraine,

Candidate Degree in Economics,

the Department of Marketing

The economic safety of Ukrainian farms

Formulation of a scientific problem and its significance. A prerequisite for the effective functioning of the farms are strengthening their economic safety. This will reduce the risk of business and increase their competitiveness. In addition, the current state of the majority of farms in Ukraine is characterized as a crisis. Thus, there is a need to develop scientifically-based mechanism for the formation of a high level economic safety of agricultural enterprises as a guarantee of their further development in a changing market environment.

Topicality of the research and its analysis. The analysis of problems related with scientific aspects of economic safety of enterprises are addressed in the writings of some researchers: G. Androschuk, A. Arkhipov, A. Baranovsky, N. Bolva, N. Vlasova, V. Geyets, A. Hrunina, G. Darnopyh, V. Zakharchenko, E. Ivanova, V. Kartavtsev, O. Novikova, G. Taranushenko and Pasternak, V. Senchahova, N. Sergienko and others. However, the essence, components and ways of ensuring the economic safety of enterprises in theoretical and applied aspects are still insufficiently studied. There is no generally accepted assessment methodology of the level of economic safety of enterprise with agricultural production peculiarities. This influenced the choice the topic of our research.

Purpose and objectives of the article. The aim of research is substantiation of the theoretical and methodological principles and elaboration of the scientific recommendations for increasing the economic safety of farms in Ukraine.

Written reproduction of the shell and merits of findings available from research. The economy of the country can not acquire signs of stability if there is a

low level of economic safety at both levels (state and regional), industries and individual enterprises. The economic safety of farms can be defined as a state or enterprise, which is characterized by resistance to internal and external threats and their ability to ensure the implementation of their own economic interests as well as function effectively and develop in conditions of uncertainty and economic risks.

Formation of economic safety of farms is under the influence of external and internal environmental factors. The inability of businesses to influence the exogenous factors (climatic conditions, market conditions, business and tax legislation, etc.) causes the focusing on the endogenous factors (availability of qualified personnel, logistics, information and analytical support, etc.). This is the main reserve of forming competitive advantages and increasing adaptive capacity of the enterprise.

The components that form the level of the economic safety of farms are finance, resources, technics, staff, production, environment and sales. They have complementary nature and interact constantly. The most significant among them are financial safety as a stable functioning and development of enterprises and it primarily requires the financial support.

Nowadays Ukrainian farms operate under the significant number of internal and external risks. In particular, fertility of the soil, which has a constant tendency to decrease, affects environmental and industrial safety negatively. Poor skills, low pay and a significant turnover of the staff determine unsatisfactory level of environmental safety of farms. Reduction of economic safety within the financial component caused by an imbalance of receivables and payables, insufficient internal and external funding. The aggravation of the military and political situation in the country leads to the discontinuation of the state financing of farms, deterioration of the investment climate in the country, living conditions (causing migration), the state of the banking system (which makes impossible to credit farmers). The above are the basis for the formation the system of measures for strengthening the economic safety of agricultural products at different levels of the hierarchy.

The state creates and regulates the economic conditions of farms. Most farms feel the lack of their own funds for financial and economic activities. It leads to reducing their economic safety. To solve this problem at the macro level it was proposed to strengthen the state's role in the credit policy through implementing the following measures:

- improve the mechanism of partial or full state guarantee of repayment of loans;
- regulation of the credit interest rate;
- use of preferential regimes payment of debts and loans in banks;
- solve the problem of long-term loans by implementing the mortgage credit of the agricultural land.

In order to solve the problem of the insurance protection for farmers the significant support from the state is necessary. It is important to apply the partnership between the private and the public sector in behalf of the successful functioning of the insurance system. The state should behave as a coordinator and monitor of the activities of insurance companies. Insurance contracts, involving the state support, promote the development of voluntary insurance of agricultural products and activate investment processes.

To strengthen the economic safety of farms at the micro level was founded the organizational and economic mechanism of farms economic safety. It includes the following steps: 1) collection of information; 2) processing the information; 3) estimation of the economic safety; 4) monitoring internal and potential threats of the enterprise; 5) identification of strategic alternatives, the development and implementation of appropriate measures to strengthen safety; 6) analysis of the effectiveness of implemented measures.

During the first and second stage the collection, processing, systematization, generalization and ordering of information is made by an expert. At the third stage this expert determines the level of safety for every element and calculates the integral index. Internal and potential threats of the enterprise revealed to the next stage. After the above procedures it is necessary to choose the strategic direction of safety management based on its current level. To implement these strategies one should take into account the impact of each component of economic safety, as its decline is due to the reduction of components. Therefore it is necessary to elaborate the appropriate measures by components and calculate the predicted value of the index of economic safety that will anticipate changings it in the future.

The impact of implemented measures, estimation and monitoring of economic safety is carried out at the next stage. For businesses that have a high level of safety is recommended the development strategy. It involves maintaining of the existing level of safety and maximum utilization of the existing potential in the future.

Enterprises that have a medium and low level of safety should apply a strategy of stabilization. It provides safety management and potential recovery of the enterprises by enhancing financial and economic activities, optimization of the structure of production. The survival strategy should be introduced to enterprises that have a critical level of safety. Such companies should focus on changes of their activities (reduction in production, reduction in the number of employees, their salaries and optimizing of the organizational structure).

To strengthen the financial safety of enterprises it is often offered to attract foreign investments and credit resources. But for small and medium producers the possibility of obtaining them is rather low. The solution of this problem is possible by combining business on a cooperative basis. It will increase their investment attractiveness and solvency as the risk of default on investment decreases. The credit problems can be overcome within cooperatives and credit unions also. They enable to obtain the credit at lower interest rates and more favorable terms compared to the financial and credit institutions.

An effective way of improve the technical safety of farms is the financial leasing as a way of long-term lending. Its use allows to update the fixed assets and avoid problems with attraction of credit resources.

Strengthening industrial safety is possible by improving the production process and implementation of resource-saving technologies that will reduce costs of production. Development of measures to preserve the natural potential of enterprises provides for implementation of ecologically safe technologies that will improve soil fertility and their rational use as well as positive environmental impact. Limited use of agrochemicals and application of organic fertilizers solve the problem of high-quality products that will be competitive both in the domestic and world markets, which is especially important in conditions of deepening world food crisis.

Conclusions and further research perspectives. The formation and support of economic safety of farms is a determining condition for its development. Only a small fraction of farms have a high level of safety in Ukraine. This situation requires the implementation of measures to strengthen their economic safety. The Conceptual Basis at the macro level is strengthening the state's role in the credit policy, promoting technology and equipment leasing as an alternative to their acquisition, developing a network of insurance funds and creating the system of motivation to enhance economic safety. At the micro level - proposing the introduction of

organizational and economic mechanism of economic safety within the strategic guidelines, defining them according to the current level. This will protect Ukrainian farms from the effects of destructive influences, help to create favorable conditions for their development and maintain a high level of economic safety.

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*Zdyrko Natalia, Vinnytsia National Agrarian University,
Associate Professor of Audit and State Control*

Control for using budget money of Ukraine

*Здирко Н.Г., Вінницький національний аграрний університет,
доцент кафедри аудиту та державного контролю*

Контроль за використанням бюджетних коштів в Україні

Постановка наукової проблеми і її значення

Контроль за формуванням та використанням бюджетних коштів на макро-рівні є одним з інструментів регулювання економіки країни в цілому. Перевірки з боку державних органів мають сприяти успішній реалізації державної політики та унеможливити випадки розкрадання державного майна та порушення бюджетного законодавства. Значна частка бюджетних правопорушень припадає на фінансування агропромислового комплексу та підтримки вітчизняних сільськогосподарських товаровиробників. Тому важливим є вдосконалення контрольних процедур і методів проведення перевірок використання коштів прямої державної підтримки сільськогосподарськими підприємствами України.

Аналіз останніх досліджень і публікацій

Питання контролю за використанням бюджетних коштів сільськогосподарськими підприємствами досліджували такі науковці, як: В.А. Дерій, І.К. Дрозд, В.О. Шевчук, Т.В. Кальченко, Є.В. Калюга, В.М. Карпова та інші. Незалежно від ґрунтовних досліджень вчених залишається ряд питань щодо удосконалення контролю за використанням бюджетних коштів, які потребують подальшого розгляду, чим і зумовлено вибір тематики нашого дослідження.

Мета роботи полягає у вивченні особливостей діючої системи державного фінансового контролю за використанням коштів державної підтримки сільськогосподарськими підприємствами та надання рекомендацій щодо її удосконалення.

Виклад основного матеріалу й обґрунтування отриманих результатів дослідження

Контроль використання бюджетних коштів є невід’ємною частиною фінансового контролю, а також одним із важелів державного управління, яке сприяє ефективній бюджетній політиці й успішній реалізації фінансової підтримки. В дослідженнях сучасних учених, які займаються вивченням методології контролю, його поділено на такі види: господарський, фінансовий, державний, муніципальний, громадський, господарсько-фінансовий, аудит, екологічний аудит, бюджетний контроль, контролінг [1, с. 44].

Кошти державної підтримки є особливим та специфічним об’єктом фінансового контролю, адже найбільше правопорушень пов’язано саме з цільовим та ефективним використанням державних ресурсів, а також законністю їх отримання.

Важливим та суттєвим негативним чинником, який впливає на зниження ефективності державних програм підтримки, а відтак і їх контролю, є несвоєчасність виділення коштів і недофінансування державних програм. Зокрема, сезонність сільськогосподарського виробництва потребує вчасного та послідовного надходження бюджетних коштів на рахунки виробників, а за даними анкетування, гроші надходили в період, коли підтримка вже втратила свою актуальність.

Несвоєчасність виділення бюджетних коштів та недофінансування програм насамперед пов’язано з недосконалістю системи планування щодо виділення бюджетних асигнувань.

Підвищити ефективність діючого порядку планування коштів підтримки можна через систему збору попередньої інформації сільськогосподарських підприємств про потреби в обсягах підтримки. Тобто заявки на отримання державної підтримки мають бути подані не після розподілу коштів серед областей, а протягом попереднього року – по вертикалі «знизу – вверху».

Перевагою такої системи планування обсягів державної підтримки для сільськогосподарських підприємств є: по-перше, унеможливлення надлишків коштів у окремих районах і в подальшому їх перерозподіл (несвоєчасне надходження коштів, додаткові витрати часу); по-друге, обґрунтованість потреби в коштах сприятиме підвищенню показників ефективності використання бюджетних коштів.

Важливим чинником при плануванні розподілу коштів є запровадження додаткових критеріїв відбору. Наприклад, перевіряти на предмет правдивості та достовірності природних втрат господарств від кліматичних чи географічних умов для усунення недобросовісних претендентів на підтримку.

Здійснення контролю та оцінки ефективності державної підтримки сільськогосподарських підприємств неможливе без встановленої та затвердженої на державному рівні методики, без визначених критеріїв, без впливу факторів.

Аналіз використання коштів Державного бюджету України, виділених на державну підтримку АПК, засвідчив, що, через безконтрольність з боку Міністерства аграрної політики України, підвідомчі йому управління та служби не забезпечували дотримання чинного законодавства в частині повернення заборгованості за наданими на поворотній основі державними коштами та матеріальними цінностями, чим значно зменшували ефективність використання коштів державного бюджету, наданих на підтримку підприємств АПК.

Допущення великої кількості фінансових порушень у державному секторі треба відносити не тільки до низької фінансової дисципліни і зловживань, а й до недоліків організаційної та функціональної складових державного фінансового контролю. У багатьох випадках це пояснюється недосконалістю його структури, нормативно-законодавчої бази, браком жорсткої системи відповідальності (щодо порушників), а також прямою функціональною залежністю його органів від державних високопосадовців [2, с. 44].

Слід зазначити, що об'єктами контролю законності та ефективності використання бюджетних коштів можуть бути не лише підприємства-одержувачі коштів, а й розпорядники нижчих рівнів (Управління АПР, Фонд підтримки фермерських господарств).

Чинна практика контролю за рухом бюджетних коштів свідчить про відсутність єдиної методики перевірки, яка б використовувалась як державними контролюючими органами, так і суб'єктами внутрішньогосподарського контролю. Першим кроком у побудові такої методики є встановлення методології, мети та методів контролю використання бюджетних коштів, визначення об'єктів та суб'єктів контролюючих дій [3, с. 144].

Серед контролюючих органів не тільки немає скоординованої та взаємозгодженої роботи, а й нерідко відбувається дублювання функцій, створення перешкод нормальній контрольній діяльності [2, с. 45].

Варто зазначити, що між органами, які є суб'єктами контролю державної підтримки сільськогосподарських підприємств, відсутня єдина електронна інформаційна база, яка сприяла б підвищенню ефективності проведення державного контролю.

Окремою проблемою, що перешкоджає ефективній державній підтримці аграрних виробників, є корупційні дії чиновників різного рівня. Так, аграрії визнали факти вимагання чиновниками грошей для перемоги сільгоспвиробників у конкурсі на отримання державної фінансової підтримки. При цьому відсоток «відкату» за отримання коштів коливався від 5 до 50 % [4, с. 28].

Для уникнення таких ситуацій та попередження бюджетних правопорушень вважаємо за доцільне запропонувати впровадження новітніх інформаційних технологій на всіх етапах забезпечення державної підтримки через реалізацію бюджетних програм. Практичним заходом для реалізації цієї ідеї має стати створення обліково-інформаційної системи державної підтримки, яка буде доступною як для отримувачів бюджетних коштів (в т.ч. фермерів), так і для розпорядників всіх рівнів, а також для контролюючих органів.

Обліково-інформаційна система державної підтримки передбачає на початковому етапі реєстрацію всіх претендентів на спеціально створеному сайті за встановленою електронною формою Анкети потенційного отримувача коштів державної підтримки [5, с. 18].

Інформаційна система формуватиме такі документи, як Рейтинг та Реєстр підприємств, Паспорт бюджетної програми, Аналітичну картку руху коштів державної підтримки, Відомість планування, отримання та використання коштів підтримки, Звіт про виконання паспорта бюджетної програми.

Важливою функціональною особливістю кожної з електронних форм є розміщення у верхньому правому кутку панелі, яка дозволяє надавати доступ окремим (або всім) користувачам системи. Якщо панель доступу не активна, це означає, що документ відкритий для перегляду всіма користувачами. Наприклад, доступ до рейтингу мають сільськогосподарські підприємства, розпорядники нижчих рівнів, Головні розпорядники та контролюючі органи.

Інформаційна система державної підтримки даватиме можливість кожному з учасників бюджетного процесу та контролюючих органів задовольняти інформаційні потреби в межах їх функціональних інтересів. За такого підходу забезпечуватиметься прозорість та гласність прийняття тих чи інших рішень, що

сприятиме попередженню бюджетних правопорушень. За умови виявлення порушень щодо законності отримання або цільового та ефективного використання бюджетних коштів дані про такого отримувача вводяться в інформаційну систему, яка формує «чорний список», і в майбутньому – користувачів бюджетних коштів, які допустили порушення, будуть позбавлені права претендувати на отримання державної підтримки.

Слід зазначити, що частково існує обмін інформацією через надсилання запитів, однак недоліком є те, що вони одновекторні, тобто запити надсилаються з вищестоящих установ – підпорядкованим, наприклад, за напрямками: Рахункова палата – Державна фінансова інспекція, Міністерство аграрної політики та продовольства – Управління АПР обласних адміністрацій. Звичайно, підпорядкована установа швидко реагує на запит та задовольняє його відповіддю (при здійсненні персоналом певних вибірок). Однак проблемою є отримання інформації установами, які перебувають на одному рівні (Державна фінансова інспекція – Міністерство доходів і зборів України) через брак часу та людських ресурсів.

За умови функціонування системи доступ до інформації буде одночасний як суб'єктам, що її формують, так і користувачам відповідно до їх функцій, завдань та повноважень.

Можна дійти висновку, що обліково-інформаційна система забезпечення державної підтримки – це електронне інформаційне середовище, при якому кожен із користувачів у межах своїх завдань та функцій надає доступ іншим (окремим) учасникам, при цьому користуючись їх інформацією щодо розподілу, обсягів, напрямів державної підтримки.

Варто зазначити, що це питання непросте і потребує витрат часу та коштів, однак без втілення його в життя механізм надання та використання коштів підтримки, а також контроль за їх формуванням і використанням залишатиметься недосконалим та з часом все одно потребуватиме кардинальних змін.

Висновки і перспективи подальшого дослідження

У процесі дослідження було встановлено, що існує потреба удосконалення інформаційного забезпечення для проведення контролю державної підтримки сільськогосподарських підприємств. З цією метою запропоновано створення обліково-інформаційної системи забезпечення державної підтримки, яка уможливить здійснення контролю всіма учасниками, сприятиме транспа-

рентності та гласності роботи Розпорядників та дозволить здійснювати ефективну оцінку.

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Olga Terenteva,

*Moscow Financial-Industrial University "Sinergiya", Ph.D. in Economics,
Associate Professor of the Financial Markets
and Currency Relations Department*

Gold reserves management of central banks

Ольга Терентьева,

*Московский финансово-промышленный университет «Синергия»,
кандидат экономических наук, доцент кафедры
Финансовых рынков и валютных отношений*

Золотые резервы в управлении центральных банков

Цель данной статьи - раскрытие мотиваций центральных банков, управляющих золотыми резервами.

Задачи статьи состоят в том, чтобы определить общие мотивации официального сектора, осуществляющего управление золотыми резервами; рассмотреть основных держателей официальных золотых резервов; выявить индивидуальные мотивации центральных банков различных государств в части управления золотыми резервами.

Золото имеет интересную ценовую динамику, начиная с 2001 г.: с апреля 2001 г. по сентябрь 2011 г. его цена поднялась более чем на 650%. С того времени она имеет то понижательный, то повышательный тренд. За последние три года объем покупок драгоценного металла официальным сектором позволяет предполагать, что многие из центральных банков находят экономические и геополитические перспективы весьма неопределенными.

С начала 2012 г. цена золота снизилась на 30% и в настоящее время находится около 1100 долл. США за тройскую унцию [1]. Но, несмотря на то, что последние три года она опускалась все ниже, и аналитики наряду с экономистами предупреждали инвесторов о необходимости воздержаться от покупок благородного металла, центральные банки по всему миру накапливали золотые резервы.

Они начали это аккумулирование в 2008 г. – в то время финансовый кризис охватил весь мир, обрушивая в рецессию даже самые сильные экономики. Пытаясь защитить свое национальное благополучие, центральные банки стали закупать золото. Вначале они приобретали золото для хеджирования рисков, связанных с экономической неопределенностью в США. Теперь же стало очевидным то, что даже экономически более сильные США не в состоянии предотвратить рецессию в глобальной экономике. Диверсификация резервных активов, особенно среди развивающихся стран, также остается одной из основных мотиваций для роста международных золотых резервов.

Официальный сектор продолжает накапливать золото, в то время как в мире происходит борьба с угрозами различного характера, способными дестабилизировать глобальную экономику. Например, в настоящее время не ослабевает геополитическое напряжение между РФ и Украиной, и в меньшей степени между РФ и зоной евро, а также между Японией и Китаем; еще не преодолена холодность в отношениях между Россией и США.

В то время как индексы *S&P 500* и *Dow Jones Industrial Average* продолжают демонстрировать рекордные уровни, траектории глобального роста не включают экономически уязвимые государства: Китай и Япония далеки от идеальных показателей; зона евро находится на грани рецессии, Россия уже испытывает экономический спад. Данные негативные тенденции в конечном счете должны отразиться и на благополучной экономике США, т.к. около 40% публичных компаний, чьи данные входят в состав индекса *S&P*, торгуют с Европой.

Таким образом, существует множество потенциальных факторов, способных негативно отразиться на финансовых рынках, поэтому центральные банки наращивают золото не в качестве инвестиций, а с целью сокращения и хеджирования волатильности в международных валютных резервах.

Если покупки благородного металла центральными банками отражают их видение перспективы глобальной экономики, то она вселяет беспокойство. В 2012 г. прирост золотых резервов официальным сектором увеличился на 534,6 т или на 17% по сравнению с показателем 2011 г. [2]. Когда цена драгоценного металла в 2013 г. снизилась, центральные банки нарастили его объем на 409,4 т, накопив около 30500 т золота в том году или одну пятую всего произведенного желтого металла.

В 2014 и 2015 гг. официальный сектор снова увеличивал золотые резервы. Таким образом, 2015 г. является шестым годом чистого спроса на золото со стороны центральных банков. Заметим, что на протяжении четырех десятилетий и до банкротства американского инвестиционного банка Lehman Brothers центральные банки выступали преимущественно чистыми продавцами драгоценного металла [3].

Центральные банки увеличили свои золотые резервы на 132 т в третьем квартале 2015 г., что на 13% выше показателя того же периода 2014 г. [4]. В целом за 9 месяцев 2015 г. общий объем покупок официальным сектором составил 425,8 т [5].

Теперь необходимо рассмотреть десятку основных держателей официальных золотых резервов.

1. США, являясь самой крупной экономической державой, занимают также первое место по объему официальных золотых активов в размере 8133,5 т, что составляет 73% от золотовалютных резервов (ЗВР) страны. Интересно, что данный объем не менялся с первого квартала 2005 г. Также стоит отметить, что золотые запасы страны публично никогда не демонстрировались, и существуют сомнения в подлинности данного уровня.

2. Второе место занимает Германия, обладая самой сильной экономикой в зоне евро. Страна располагает 3381 т золотых резервов (67% от ЗВР), распределив их хранение следующим образом: 31% - в самой Германии, 45% - в Федеральной резервной системе в Нью-Йорке, 13% - в Лондоне и 11% - в Париже.

3. Италия располагает объемом в 2451,8 т золота (65% от ЗВР). Центральный банк страны не наращивал данный объем с 2000 г.

4. Золотые резервы Франции стабильно находятся на уровне 2435,5 т (62% от ЗВР) – центральный банк страны не продает и не покупает металл с 2010 г. и придерживается мнения, что золото – это надежный актив, диверсифицирующий ЗВР и способный абсорбировать волатильность с баланса банка. В настоящее время это особенно актуально с учетом того, что Франция стоит на пороге рецессии.

5. Народный Банк Китая (НБК) объявил в июле 2015 г., что его золотые резервы составили 1658 т, увеличившись более чем на 50% с 2009 г. (6 лет он не раскрывал информацию о своих резервах). По уровню золотых резервов на

конец третьего квартала 2015 г., официально составляющих 1708,5 т, КНР занимает пятую позицию. Интересно, что по сравнению с вышеприведенными странами, на долю золота в ЗВР Китая приходится лишь 2%. Следует также отметить, что начиная с июля 2015 г. Народный Банк Китая (НБК) стал регулярно публиковать изменения в своих золотых резервах. Так, только за июнь 2015 г. они увеличились на 600 т, а в период с июля по сентябрь текущего года - на 50 т. Суммарно это приращение составляет 24% от мировой добычи золота (2800 т).

Тем не менее, существуют сомнения, что указанные темпы роста золотых резервов КНР не приуменьшены. В случае их подтверждения мировой рынок золота может быть дестабилизирован, а США расценят реальный объем резервов Китая как угрозу своей национальной валюте. Однако пока стране выгодно придерживаться официальных показателей, поскольку НБК продолжает скупать золото по низким ценам.

Между тем, председатель КНР Си Цзиньпин признал, что «некоторые активы в иностранной валюте были переданы центральным банком отечественным банкам, компаниям и физическим лицам» [6]. Из этого следует, что реальный объем золота, принадлежащий НБК, хранится у третьих лиц, а не в хранилищах банка. Данная схема позволяет Китаю занижать официальные данные.

По нашему мнению, НБК продолжит политику аккумуляции золотых резервов, в т.ч. по причине включения юаня с 1 октября 2015 г. в корзину мировых резервных валют [7]. Таким образом, создается база для обеспечения надежности китайской национальной валюты.

6. После объявления в июле 2015 г. НБК об объеме своих золотых резервов Россия и Китай поменялись местами, в результате РФ переместилась на шестое место, располагая 1352,2 т золота, что составляет 13% от ее ЗВР.

В третьем квартале 2015 г. Россия лидирует в наращивании официальных золотых резервов: объем покупок драгоценного металла в данном периоде составил 77,2 т. Наряду с Китаем РФ остается самым значимым покупателем золота в 2015 г.: объем приобретенного с начала года золота достиг 144 т. Основными причинами данного прироста можно считать: желание ЦБ РФ снизить зависимость от доллара США и евро, находящихся в ЗВР; укрепление ЗВР в условиях санкций и экономической рецессии.

7. Швейцария располагает объемом в 1040 т золота, составляющим 7,5% от ЗВР. Недавно Швейцарией была отвергнута инициатива увеличения доли золота до 20% в ЗВР.

8. Золотые резервы Японии находятся на уровне 765,2 т (2% от ЗВР) и остаются неизменными с первого квартала 2001 г. В настоящее время это государство безуспешно пытается преодолеть проблему дефицита торгового баланса, составившего в ноябре 2015 г. 379,7 млрд иен [8]. Как одна из сильнейших мировых экономик Япония могла бы добавить золото в ЗВР для стабилизации своей национальной валюты.

9. Нидерланды накопили 612,5 т золота в своих резервах (54,1% от ЗВР). Центральный банк страны сообщил, что недавно было репатрировано 120 т драгоценного металла из Нью-Йорка в Амстердам с целью хранения 31% золотых резервов в своей стране (ранее эта доля составляла 11%).

10. Золотые резервы Индии составляют 557,7 т (6% от ЗВР). Примечательно, что недавно в стране была отменена пошлина (и др. ограничения) на импорт золотых слитков. Данный шаг призван обеспечить более выгодное наращивание официальных золотых резервов.

На основании данной статьи можно сделать ряд выводов. Во-первых, центральные банки, несмотря на ценовую динамику золота, продолжают его накопление в ЗВР, превратившись из его продавцов в покупателей, начиная с финансового кризиса 2008 г. Во-вторых, лидерами по приросту золотых активов в 2015 г. стали Китай и Россия. В-третьих, в статье раскрыты индивидуальные мотивации покупки золота каждым отдельным государством, но общими для всех остаются следующие: неясные экономические и геополитические перспективы, диверсификация резервных активов, хеджирование волатильности в ЗВР.

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Petrashevskaya A.D.,

*A.S. Popov Odessa National Academy of Telecommunications,
Ph.D., Assoc. Dep. Business Economics and Corporate Management*

Sources and evaluation of financial assets and financial potential when providing innovation activities in Ukraine

Abstract: The following study offers funding sources of economic entities as well as measures of production form reestablishment as the basis of its innovation development.

Keywords: innovation activities, financial potential, financing, country.

Петрашевська А.Д.,

Одеська національна академія зв'язку

ім. О.С. Попова,

к.е.н., доц. каф. економіки підприємства

та корпоративного управління

Джерела та оцінка фінансових ресурсів і фінансового потенціалу забезпечення інноваційної діяльності в Україні

Анотація: Надано джерела фінансування суб'єктів господарювання, заходи фінансового оздоровлення виробничої форми як основи її інноваційного розвитку.

Ключові слова: інноваційна діяльність, фінансовий потенціал, фінансування, країна.

Вступ. На сучасному етапі розповсюдження нових технологій, інформатизації, в контексті поставленої задачі формування інноваційної моделі розвитку України для ефективного фінансового забезпечення інноваційної діяльності важливим аспектом виступають не лише обсяги, а й структура джерел формуван-

ня фінансових ресурсів та фінансового потенціалу. Саме структуру джерел фінансування вважають показником якості фінансових ресурсів, а їх оптимізацію – вирішальним чинником, здатним забезпечити прискорення розвитку. Так, фінансовий потенціал залежить в основному від стану внутрішніх заощаджень. Велика питома вага залучених ресурсів обтяжує фінансову діяльність підприємств додатковими витратами на сплату відсотків за кредитами комерційних банків, дивідендів за акціями та облігаціями та ускладнить ліквідність балансу підприємства.

Постановка завдання. Зазначені питання привертають увагу дослідників на необхідність оновлення традиційних підходів до фінансового забезпечення інноваційної діяльності.

Проблематиці цих питань присвячені роботи багатьох провідних вчених: Амоши О.І., Буркинського Б.В., Дацій О.І., Іл'єнкова С.Д., Йохана М.А., Меркунова М.М., Моліної О.В.

Проте, не зважаючи на зазначені наукові напрацювання в цій області, питання ефективного фінансового забезпечення інноваційної діяльності залишаються не до кінця визначеними та потребують подальшого дослідження.

Метою статті є розкриття мобілізуючого впливу та виявлення нових граней фінансових ресурсів.

Результати дослідження. Джерела фінансування потреб суб'єктів господарювання представлені в табл. 1 [1]. Перелічені джерела можна розглядати як фактори, що вказують на шляхи нарощування фінансових ресурсів та зміцнення фінансового потенціалу суб'єктів господарювання, у тому числі й для інноваційного розвитку.

У структурі фінансових ресурсів забезпечення інноваційної діяльності прибуток є вирішальним. Тому, коли йдеться про фінансовий потенціал такої діяльності, особливо гостро стоїть проблема розблокування джерел формування та раціоналізації напрямів використання прибутку. В умовах ринкової економіки, кінцевим результатом будь-якої економічної діяльності є не балансовий, а чистий прибуток, що залишається в повному розпорядженні підприємства чи організації [2]. Звідси особлива актуальність податкової складової формування фінансового потенціалу інноваційного розвитку. Основні шляхи вивільнення фінансового потенціалу цілком виправдано вбачають у стимулюванні відродження

Таблиця 1

Джерела фінансування

Джерела фінансування				
Внутрішні		Зовнішні		
Активне самофінансування	Неактивне (приховане) самофінансування (це додаткові джерела внаслідок заниження оцінки майна (нематеріальних активів), понижених відрахувань до резервних фондів, що не відображено в балансі)	Фінансування на основі власних коштів (пайове фінансування)	Фінансування за рахунок залучених коштів	
		1. Внески засновників в уставний капітал 2. Емісія власних акцій 3. Ризиковий (венчурний) капітал	Короткостроковий залучений капітал	Довгостроковий залучений капітал
			1. Комерційний кредит 2. Передоплата 3. Бланковий кредит 4. Контокорентний кредит 5. Вексельний кредит 6. Кредит під гарантію 7. Факторинг 8. Інші позички	1. Емісія корпоративних облигацій 2. Довгостроковий банківський кредит 3. Іпотечний кредит 4. Довгострокові займи 5. Фінансовий лізинг 6. Інші кредити

джерел утворення інвестиційних ресурсів на мікрорівні, зменшенні податкового тиску на виробництво, зміні політики доходів у державі з метою залучення до інноваційно-інвестиційних процесів населення як масового інвестора, відновленні довгострокового банківського кредитування тощо [3].

Фахівці приходять висновку, що значна частина фінансових коштів підприємств, у тому числі і фондів відшкодування, різними шляхами відволікається з виробничої сфери і спрямовується на поточне приватне споживання, накопичується на рахунках населення. Це дає підстави зробити висновок, що внутрішній фінансовий потенціал не втрачений, тому важливо сформувати ефективний механізм, здатний спрямувати ці кошти на потреби розвитку виробництва, запобігти їх перекачуванню з виробничих галузей у сферу власного споживання та спекулятивного обігу. В економічно розвинених країнах чверть національних заощаджень формується за рахунок заощаджень населення. У виробничій сфері зростання обсягів фінансування на відновлення виробництва слід забезпечувати за рахунок реалізації системи заходів щодо зниження витрат на виробництво.

Основними заходами фінансового оздоровлення виробничої сфери як основи її інноваційного розвитку вбачають [4]:

- переборення тенденції відтоку капіталу з галузей матеріального виробництва у сферу обігу та за кордон;
- підвищення норми нагромадження за рахунок капіталізації чистого (після сплати податків) прибутку шляхом введення тимчасового режиму інвестиційного контролю в приватизованому і державному секторах економіки;
- створення умов для формування і використання за цільовим призначенням фондів амортизаційних відрахувань;
- акумулювання заощаджень населення для подальшого їх перетворення в реальний промисловий і фінансовий капітал;
- зняття перешкод для об'єднання вітчизняного банківського і промислового капіталу (за умов посилення гарантії повернення залучених коштів);
- забезпечення капіталізації доходів від реалізації акцій приватизованих підприємств, що належать трудовим колективам, управлінській номенклатурі, стороннім одержувачам, у тому числі великих пакетів акцій, що є власністю регіональних органів влади;
- прийняття заходів для покращання поточного фінансового стану підприємств шляхом створення державної системи нагляду за виконанням ними своїх фінансових зобов'язань.

Велике значення для пошуку резервів фінансового потенціалу має обумовленість його розмірів загальним станом економічних процесів, недостатньою фінансовою стійкістю на макро- та мікрорівнях.

До параметрів фінансової стійкості відноситься [5]:

- соціально-політична ситуація (рівень соціальної стабільності, вплив опозиції, фінансово-економічна і соціальна політика);
- загальноекономічний стан (стан платіжного балансу, інвестиційний клімат, стан реального сектору економіки, масштаби тіньової економіки, рівень оновлення виробничих потужностей, стан фінансового ринку, попит і пропозиція грошової маси, темпи інфляції та інфляційне очікування, вартість і графік обслуговування державного боргу, рівень дохідності ринку цінних паперів, обмінний курс валют, грошова емісія, спрямованість грошово-кредитної політики Нацбанку);

– внутрішня стійкість (рівень менеджменту, якість стратегії, рівень кваліфікації персоналу).

Основним матеріальним джерелом грошових прибутків і фондів слугує національний дохід країни – новостворена вартість або вартість валового внутрішнього продукту за відрахуванням спожитих у процесі виробництва знарядь і засобів. Збільшення національного доходу є головною умовою росту фінансових ресурсів. Проте фінансовий потенціал не може виражатися загальною сумою фінансових ресурсів держави і ототожнюватися та розглядатися як сукупний дохід суспільства чи розмір національного доходу. Сукупний дохід суспільства не може виступати фінансовим потенціалом із-за об'єктивної необхідності відтворення технологічних засобів виробництва і предметів праці. Розмір національного доходу, виступаючи джерелом фінансового забезпечення інноваційного розвитку, також не може характеризувати фінансовий потенціал інноваційного розвитку [6]. Але величина національного доходу, зменшена на суму витрат для відтворення життєво необхідних потреб громадян, і капітал, що залишається після забезпечення потреб суб'єктів господарювання на заміщення виробничих основних фондів, які вибувають у результаті морального та фізичного зносу основного капіталу (реновація), може теоретично оцінюватися як фінансовий потенціал інноваційного розвитку. Тобто фінансовий потенціал інноваційного розвитку необхідно визначати з урахуванням співвідношення елементів вартості, що споживається та створюється. Для оцінки аналітичних потреб можливо використати ряд показників та коефіцієнтів, що пропонує економічна наука (табл. 2).

Таблиця 2

**Деякі показники кількісної верифікації
окремих фінансових параметрів**

Показники та коефіцієнти, що характеризують		
фінансовий стан	фінансову стійкість	фінансовий потенціал
1	2	3
Показники оцінки стану і структури майна та виробничого потенціалу	Коефіцієнт співвідношення залучених і власних коштів (фінансовий леверидж)	Фінансова гнучкість, а саме — спроможність збільшувати капітал у визначені терміни за несприятливих умов
Оцінка зміни темпів зростання мобільних оборотних засобів та іммобілізованих засобів	Коефіцієнт автономії – частка власного і залученого капіталу в активі балансу	Оптимізація структури капіталу, досягнення фінансової стійкості

Закінчення табл. 2

1	2	3
Оцінка зміни джерел формування коштів	Коефіцієнт реальної вартості засобів у майні підприємства	Досягнення фінансової відкритості підприємства для власників (акціонерів, засновників), інвесторів і кредиторів
Оцінка стану розрахунків підприємства	Коефіцієнт нагромадження амортизації	Використання ринкових механізмів залучення капіталу за допомогою емісії корпоративних цінних паперів
Оцінка зміни показників, що характеризують фінансову стійкість	Коефіцієнт вартості засобів виробничого призначення у вартості майна підприємства	
	Коефіцієнт концентрації власного капіталу	
	Коефіцієнт фінансової залежності	
	Коефіцієнт покриття відсотків	
	Коефіцієнт маневреності власними оборотними коштами	
	Коефіцієнт маневреності, що показує частку вільних грошових коштів у власному капіталі	

Висновки. Таким чином держава має можливість стимулювати створення ділового потенціалу інноваційного розвитку. Однак існує багато складностей для оцінки фінансових можливостей та потенціалу інноваційного розвитку, проте існує значний перелік факторів, що його формують, а тому важливо відокремити із цього переліку найбільш істотні.

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S.I. Neuymin,

*Botanical Garden of the Ural Unit of the Russian Academy of Sciences,
Head of the Laboratory of Introduction of Herbaceous Plants,
Head of the Department of Botany and Pharmacognosy, Ph.D.,*

S.K. Temirbekova,

*Federal State Scientific Institution "All-Russia Selection-Technological Institute
of Horticulture And Nursery", Professor, Doctor of Biol. Sciences,
Head of the Laboratory of Field Crops,*

A.A. Montile,

*Botanical Garden of the Ural Unit of the Russian Academy of Sciences,
Junior Researcher*

***Variability of elementary frequency characteristics
of radical index in the system of contracted reflected
in classification of wheat grass types***

Abstract: We studied the possibilities of signs transformation into numerical radical. On the basis of radical index of contracted reflections (RI CTS) we have got elementary frequency (EF). Special characteristics of the wheat grass type variability according to the positional variability of EF RI CTS were revealed. Also, general principles in positional variability of EF according to the value of numerical radical were defined.

Keywords: type variability, biological periodicity, elementary frequency of radical index.

С.И. Неуймин,

*ФГБУН «Ботанический сад УрО РАН», ГБОУ ВПО УГМУ,
кандидат биологических наук, зав. лабораторией интродукции
травянистых растений, зав. кафедрой ботаники и фармакогнозии,*

С.К. Темирбекова,

*ФГБНУ «Всероссийский селекционно-технологический институт
садоводства и питомниководства», профессор, доктор биол. наук,
заведующий лабораторией полевых культур,*

А.А. Монтиле,

младший научный сотрудник ФГБУН «Ботанический сад УрО РАН»

***Изменение свойств элементарных частот
радикального показателя системы сжатых
отображений при классификации видов житняка
гребневидного и пустынного***

Аннотация: Рассмотрены возможности преобразования признаков в числовой радикал. На основе радикального показателя системы сжатых отображений (R_p ССО) получены элементарные частоты (ЭЧ). Выявлены особенности рядовой изменчивости видов житняка в соответствии с позиционной изменчивостью ЭЧ R_p ССО. Установлены общие закономерности в позиционной изменчивости элементарных частот в зависимости от величины числового радикала.

Ключевые слова: рядовая изменчивость, биологическая периодичность, элементарные частоты радикального показателя.

Введение

Развитие современных исследований порождают новые направления в изучении «биологической периодичности». Обозначены основные направления в поиске возможности классификации биологических объектов, напоминающих периодическую систему химических элементов [1, 2 и др.]. Теория периодической системы элементов представляет собой классификацию химических элементов в соответствии с периодическим законом Д.И. Менделеева (1869). По мнению автора закона, [С. 111, 3] «Свойства элементов, а потому и свойства образуемых ими простых и сложных тел, стоят в периодической зависимости от их атомного веса». В современной трактовке закона Д.И. Менделеева подчеркивается постепенное изменение свойств элементов при переходе от одного периода к другому – периодическое повторение общих свойств. По мнению автора закона, периодическая система позволяет без специальных исследований

узнавать о свойствах элементов только на основании известных свойств соседних по группе или периоду элементов.

Еще в начале прошлого века рядом ученых была предпринята попытка раскрытия свойств отдельных признаков и использования их в качестве радикала [4, 5, 6]. При детальном изучении радикалов складывается более сложное представление о составе, однозначности и о самой возможности выявления таких признаков для некоторых изучаемых видов и подвигов, что дает право говорить об изменчивости радикала. Как правило, радикал у видов не бывает представлен только одним признаком, но может выражаться рядом из значительного числа вариантов. Е.Н. Синская [7] указывала на 11 наиболее часто встречающихся в практике исследователей популяций и систематиков типов параллелизма рядов, выделяя особую категорию – рядовую изменчивость количественных признаков. Например, ряд $a_1, a_2, a_3, a_4, a_5, \dots$ – в котором можно предполагать «квантированность» в процессах усиления или ослабления одного и того же признака или свойства. Параллельные ряды проявляются не только в отношении отдельных признаков, но и при сравнении групповой изменчивости [7].

Впервые использование свойств периодических повторений, а именно гомологичной изменчивости качественных признаков у различных видов и родов было предпринято в начале XX века. Закон гомологических рядов Н.И. Вавилова (1920) [4] позволил систематизировать большой объем материала растительного происхождения. В последующем гомологичная изменчивость широко рассматривалась в классификации живых организмов. Особо подчеркивается гомология фенотипической изменчивости в группах различных таксонов, ключевую роль в которых играет радикал. По нашему мнению, само понятие радикала несет в себе особое смысловое значение, направленное на раскрытие свойств растительной системы, а именно её относительного текущего состояния в определенный момент времени. Предложенная ранее модель расчета радикала [8] позволяет получать числовое значение по наиболее выраженным совокупностям равновеликих признаков. Подчеркивается взаимосвязь количества равновеликих признаков с конструктивными особенностями конкретных морф, которые составляют варианты гомологичных последовательностей признаков.

Материал и методы

Материалом для биосистематического исследования послужили наши сборы видов житняка *Agropyron Gaertn.* на территории Южного Урала. Для анализа были выбраны типичные местообитания житняка, в высотном градиенте (гора Верблюжка, Беляевский район Оренбургская обл.). Таксономическая принадлежность изучаемых видов установлена в соответствии с системой знаков Н.Н. Цвелева (1976) [9]. Измерение проекций элементов признака проводилась в графическом пакете программы *Corel DRAW Graphics Suite X3* [10]. Расчет радикального показателя системы сжатых отображений [11, 12] по разработанному нами программному модулю «*Radical*» [13]. Последующий анализ позиционной изменчивости частот *Pл* ССО – по Симпсону, (1960) [14].

Результаты и обсуждения

Модель построения радикала. Рассмотрим способ преобразования элементарных признаков (табл.), охватывающих два взаимосвязанных уровня описания конструкции генеративной сферы растений житняка, и построения на их основе числового радикала. Под элементарными признаками мы понимаем варианты фрагментов фенотипа, выражающие последовательность (гомологических рядов) проекций частей гомологичных признака(ов). Схема расчетов, проводимых для построения сложного признака радикала представлена на рис. 1.

На первом шаге расчет среднего для каждого элементарного признака по всем экоморфам производится по формуле $\langle x_i \rangle = (\sum_{A,B,C...} x_i) / N$, $\bar{x} = a, b, c, \dots$. На втором шаге – элементарные признаки преобразуются в соответствии с формулой $x'_i = \langle x_i \rangle * 0.618 / \bar{x}$, $x = a, b, c, \dots$. Следующий этап – нахождение суммарного признака, суммированием элементарных для каждого признака $x = a, b, c, \dots$ в пределах данной экоморфы A, B, C, \dots . Далее находится общее среднее признаков по всем экоморфам по формуле $S = (\sum_{A,B,C...} (\sum_{a,b,c...} \Sigma x'_i)) / Nn$, $x = a, b, c, \dots$. Затем следует преобразование уже суммированных признаков $x = a, b, c, \dots$ в соответствии с формулой $\Sigma x''_i = S / \Sigma x'_i * 0.618$. Наконец, гомологичные признаки суммируются по всем экоморфам, находятся $\sum_{A,B,C...} (\Sigma x''_i)$, $x = a, b, c, \dots$

Суммарные признаки упорядочиваются по возрастанию значений на оси. Заключительный этап – классификация признаков с иерархическим усреднением (рис. 2).

Информационная блок-схема получения признака радикала

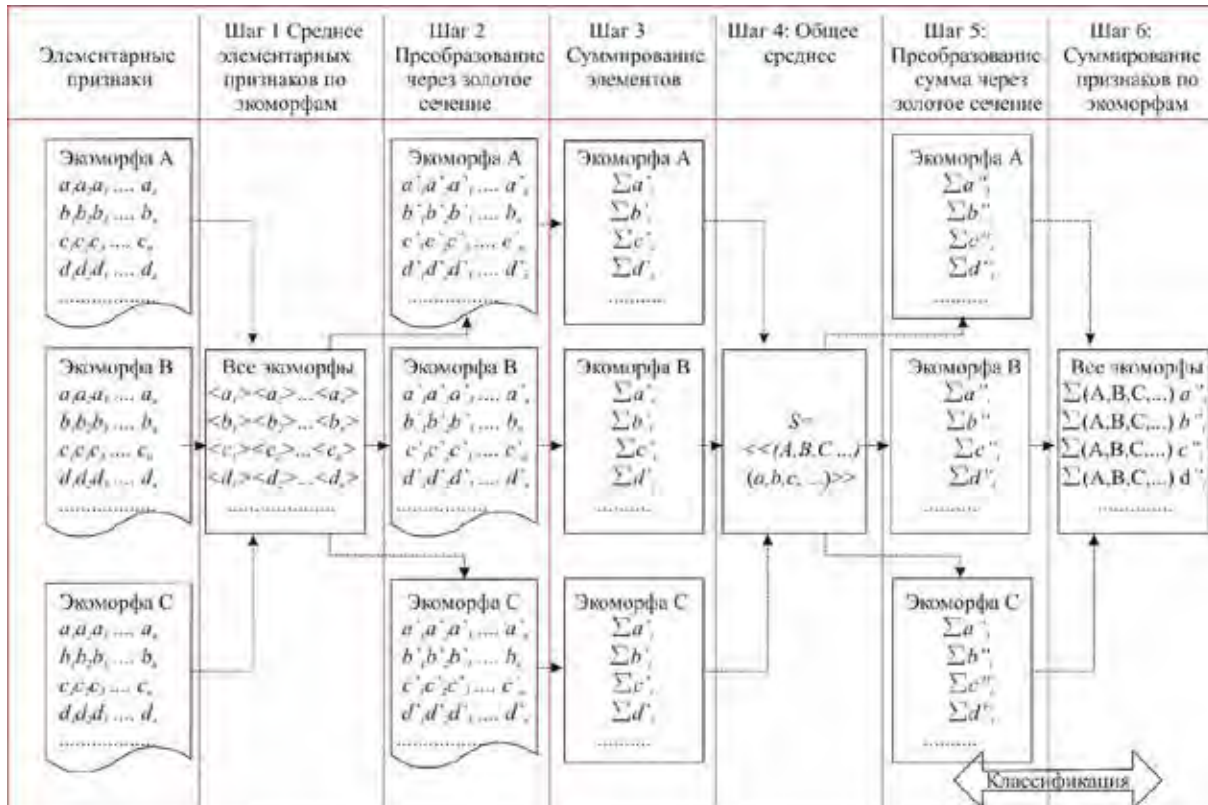


Рис. 1. Схема расчетов сложного признака-радикала по фиксируемым последовательностям элементарных признаков в составе признаков (a, b, c, d, ...)

Классификация производится на суммированных по экоморфам признаках, в соответствии с ней упорядочиваются и признаки каждой экоморфы. Из двух групп признаков выбирается та, которая соответствует наибольшей выраженности, она и является сложным радикалом.

В качестве модельных объектов для расчета радикала возьмем числовые данные измерений последовательностей элементарных признаков у представителей двух видов житняка: житняк пустынный *Agropyron desertorum* (Fisch. ex Link) Schult. и житняк гребневидный *Agropyron cristatum* subsp. *pectinatum* (Bieb.) Tzvel. (табл.). Отбор соцветий этих видов проведен на их местообитаниях (профильных площадках) по маршруту сбора материала методом модельных экземпляров.

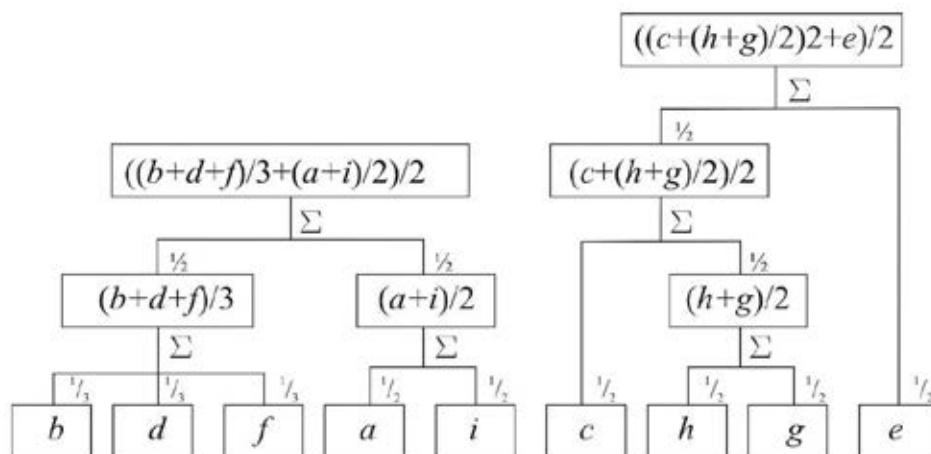


Рис. 2. Схема классификации суммированных признаков с иерархическим усреднением

Полученные числовые значения заносятся в табл. исходных данных фрагментов измеряемых элементарных признаков (ФЭИП). Измеряемым признакам присваивается буквенное обозначение, которое в последующем используется для записи формул сочетания признаков при расчете радикала.

В результате применения последовательного преобразования признаков [8] выделены относительно равновеликие признаки в сочетании $(f+(k+a))$, что в модели предполагает определенную последовательность их усреднения и получения числового радикала (Rad).

$$\bar{x} = \frac{(k+a)}{2} \quad (1)$$

$$Rad = \frac{(f+\bar{x})}{2} \quad (2)$$

где, Rad – вычисляемый радикал;

k – суммы признаков «угол отхождения 2-й цветковой чешуи»;

a – суммы признаков «угол отхождения колосковой чешуи»;

f – суммы признаков «угол отхождения 1-й цветковой чешуи».

Рассмотрим характерные особенности фенотипической дифференциации по значениям радикала в определенном вариационном ряду. На схеме 1 представлены соотнесенные варианты рядовой изменчивости. Вариационный ряд построен в направлении увеличения числовой величины радикала (Rad).

Представленные величины в целом отражают динамику рядовой изменчивости совокупности признаков и образуют соответствующий ряд экоморф,

при этом определенно выделяются группировки житняка пустынного и житняка гребневидного (схема 1).

Для раскрытия полиморфизма внешних различий формализуем признаки с учетом числового значения радикала. В результате преобразования по заданному алгоритму получены графические распределения относительных позиций элементарных частот P_n ССО (рис. 3).

Элементарные частоты радикального показателя системы сжатых отображений – это частоты числовых значений, полученных в результате обработки исходных проекций гомологичных элементарных признаков экоморф в соответствии с алгоритмом унификации признаков по спирали на базе радикального показателя системы сжатых отображений.

Наиболее показательным является специфика локализации элементарных частот в соответствующем частотном пространстве. Все представленные виды *Agropyron* Gaertn., такие как *Agropyron desertorum* (Fisch. ex Link) Schult. и *A.cristatum* subsp. *pectinatum* (Bieb.) Tzvel. имеют характерные распределения ЭЧ P_n ССО. Большинство представленных экоморф *A.desertorum* (Fisch. ex Link) Schult. имеют наибольший размах в позициях ЭЧ P_n ССО и находятся в пределах от 376 до 566, в то время как *A.cristatum* subsp. *pectinatum* (Bieb.) Tzvel. – от 416 до 555, соответственно более сжатые позиции (рис. 3). С целью изучения морфогенетического разнообразия видов житняка проведем кластеризацию маркерных ЭЧ P_n ССО по Симпсону методом дальнего соседа (рис. 4).

В соответствии с вариационным рядом схемы 1 прослеживается прямая зависимость между величиной радикала и внешним проявлением проекций элементарных признаков. Выявлена прямая зависимость между числовой величиной радикала и позиционной изменчивостью элементарных частот радикального показателя системы сжатых отображений, а также постепенное изменение спектров элементарных частот по мере увеличения числового значения радикала (рис. 3, рис. 4).

Таблица 1

Форма записи фрагментов измеряемых элементарных признаков (ФЭИП)
на примере экоморфы 088_771 *Agropyron desertorum* (Fisch. ex Link) Schult.

Признаки	ФЭИП	Ед. изм.	Фрагменты измеряемых элементарных признаков											
			эл_4	эл_5	эл_6	эл_7	эл_8	эл_9	эл_10					
Название	П													
1	2	4	5	6	7	8	9	10	11					
Радикал	Rad		2,14	2,14	2,14	2,14	2,14	2,14	2,14	2,14	2,14	2,14	2,14	2,14
Угол отхождения колосковой чешуи	a	град	20,23	21,4	9,05	15,14	12,91	10,46	12,33					
Длина колосковой чешуи до ости	b	мм	4,59	4,31	3,94	4,23	4,20	3,70	4,15					
Общая длина колосковой чешуи	c	мм	5,39	4,85	4,58	4,88	4,74	4,44	4,70					
Толщина колосковой чешуи	d	мм	0,91	0,89	0,95	0,89	0,95	1,04	1,11					
Длина 2-х сегментов	e	мм	4,50	4,23	4,18	4,63	4,94	5,29	5,76					
Угол отхождения 1-й цветковой чешуи	f	град	19,96	21,74	11,72	15,09	15,22	12,42	13,58					

Схема 1

























Варианты рядовой изменчивости житняка песчаного *Agropyron desertorum* (Fisch. ex Link) Schult.

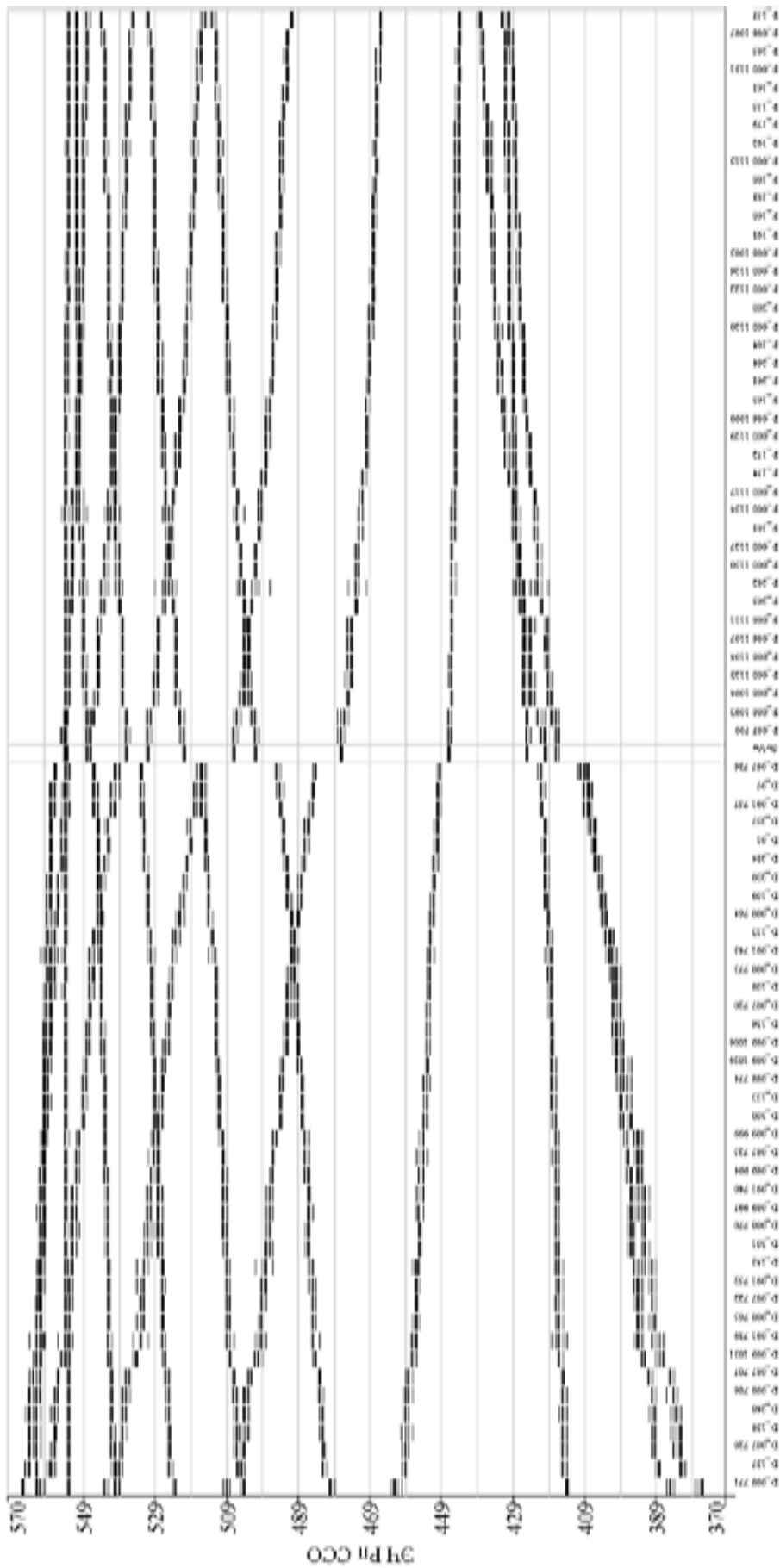
и житняка гребневидного *Agropyron cristatum* subsp. *pectinatum* (Bieb.) Tzvel., выраженные числовым показателем

радикала *Rad*

Вид	<i>Agropyron desertorum</i> (Fisch. ex Link) Schult.											
Фрагмент соцветья												
<i>Rad</i> = (f+(k+a))	2,14	2,38	2,45	2,45	2,47	2,50	2,55	2,71	2,79	2,83	2,84	2,87
Фрагмент соцветья												
<i>Rad</i> = (f+(k+a))	2,88	2,99	3,00	3,01	3,01	3,08	3,10	3,14	3,29	3,32	3,34	3,39
Фрагмент соцветья												
<i>Rad</i> = (f+(k+a))	3,47	3,49	3,53	3,56	3,59	3,65	3,72	3,87	3,94	3,99	4,10	4,19

Схема 1 – продолжение

Вид	<i>Agropyron cristatum</i> subsp. <i>pectinatum</i> (Bieb.) Tzvel.					
Фрагмент соцветья						
$Rad = (f+(k+a))$	6,22	6,38	6,75	6,84	6,92	6,94
Фрагмент соцветья						
$Rad = (f+(k+a))$	8,11	8,19	8,50	8,67	8,71	8,85
Фрагмент соцветья						
$Rad = (f+(k+a))$	9,04	9,31	9,34	9,44	9,53	9,76
Фрагмент соцветья						
$Rad = (f+(k+a))$	10,50	10,55	10,56	10,57	10,84	11,07



Agropyron disertorum (Fisch. ex Link) Schult. *Agropyron cristatum* subsp. *pectinatum* (Vieb.) Tzvel.

**Рис. 3. Изменчивость позиций элементарных частот Р11 ССО
в зависимости от величины радикала**

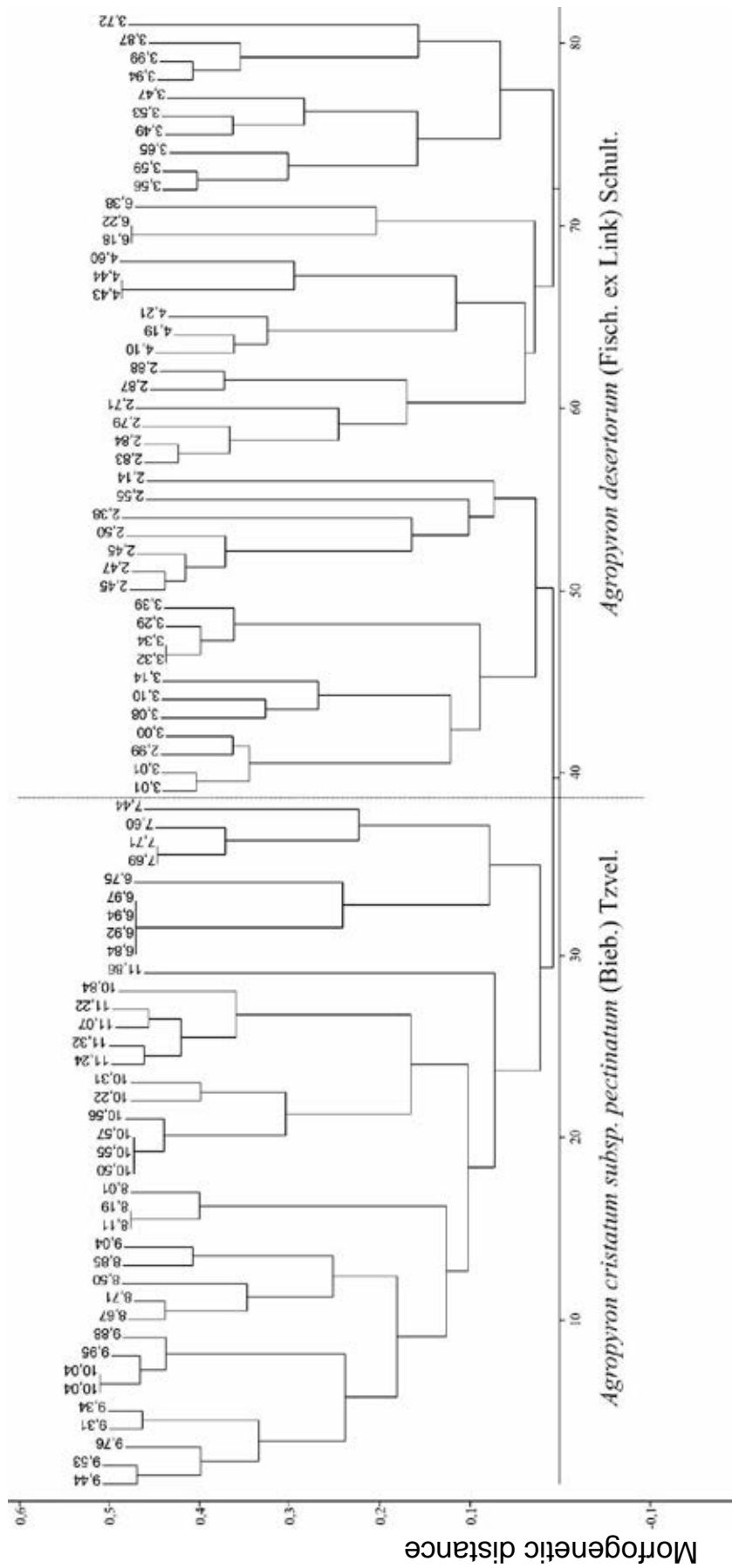


Рис. 4. Морфогенетические расстояния, рассчитанные по Симпсону методом дальнего соседа с использованием маркерных ЭЧ Рл ССО, где 9,44, 9,53, 9,76 3,99, 3,87, 3,72 – значения числового радикала (Rad)

По нашему мнению, полученная зависимость позволяет проводить дальнейшую классификацию с использованием ЭЧ P_n ССО и в соответствии с теорией периодической системы элементов.

Показатель «ЭЧ P_n ССО» – позволяет дифференцировать внутривидовое многообразие и облегчает его классификацию. По распределению элементарных частот возможно выявить гомологичные ЭЧ P_n ССО на основании известных характеристик соседних групп или периоду элементарных частот.

Таким образом, разработан принцип классификации комплекса признаков формально выраженных в виде значений частот радикального показателя системы сжатых отображений в свете Закона гомологических рядов Н.И. Вавилова и Закона спиральной эволюции в филогенетической истории родов Е.Н. Синской. Установлены общие закономерности относительной подвижности частот P_n ССО в зависимости от величины радикала. При последовательном упорядочивании средних значений P_n ССО отмечены специфические изменения свойств позиционного расположения частот, носящих периодический характер.

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**M. I. Hossain, A. M. Shahabuddin, M. A. B. Bhuyain,
M. A. Mannan, M. N. D. Khan and R. Ahmed,**
*Gazi Fish Culture Ltd, Koilashgong, Khulna, Bangladesh,
Graduate School of Bioresources, Mie University, Mie Prefecture, Japan,
Institute of Marine Sciences and Fisheries,
University of Chittagong, Bangladesh,
Department of Fisheries Management,
Bangladesh Agricultural University, Bangladesh,
Department of Fisheries, Ministry of Fisheries
and Livestock, Dhaka, Bangladesh,
Department of Fisheries, Sher-e-Bangla
Agricultural University, Bangladesh*

Scaling Up of Stocking Density of Tiger Shrimp (Penaeus monodon) under Improved Farming System in Khulna Region of Bangladesh

1. INTRODUCTION

Shrimp farming is a century-old practice in many Asian countries. It is one of the most exportable frozen products of Bangladesh [1]. The culture of shrimp received maximum importance due to its high value in the world market as well as its unique taste; high nutritive value making it's a quick profit item in the country. Until a decade ago, this commodity was generally considered a secondary crop in traditional fish farming practices. Shrimp fry trapped in salt beds, coastal paddy fields or brackish water fishponds were allowed to grow to marketable size and harvested as secondary crop. However, in recent years when higher income are derived from the harvest of shrimp than the principal crop, many farmers have converted their rice fields, salt beds and fishponds into shrimp farms [2].

In Bangladesh the shrimp farming mostly concentrated in the southern region and about 80% of the areas are in Khulna region that covers more than 145 thousand hectares of land. Most of the culture techniques are done through extensive method where production never goes above 120 kg/ha/year [3]. In the traditional farming system, the ponds are stocked with fry either collected from the

wild or concentrated through tidal water entering the ponds [4]. Subsequently yield is very low because of inefficient control of predators and competitors, full dependence on natural food, inadequate pond depth and water quality management. Some improvements of the traditional farming systems have been made in the past years. Stocking density of shrimp can be increased through better management practices. As a result, pond yield has correspondingly increased. However, expansion of the shrimp farming industry is still restricted due to the lack of suitable culture technology and disease problems in Bangladesh.

The success in the mass production of shrimp can be achieved to 4–5 tons/ ha through improved pond culture techniques, water quality management and artificial feeding. Shrimp farming has now developed into an important export-oriented food industry especially in South Asian countries. The perception of an unlimited market demand, high export price, generation of employment and increase in foreign exchange earnings may have encouraged many countries in the region rich in aquatic resources to place high emphasis on the development of the shrimp culture industry. However till now optimization of stocking density in shrimp farming in Bangladesh is the triggering factor for maximizing the survival rate and boost up production. Stocking density also related to the culture system and environmental condition of the agro-ecological conditions. Most of the research findings are concentrated on the extensive farming system and pond dynamics of shrimp farms in Bangladesh [5-7]. Some of the research works on stocking density and total production by Shofiquzzoha and Ahmed [8], Apud et al. [9], Islam et al. [10], Islam and Alam [11], Nuruzzaman et al. [12], were showed that in all cases the stocking density were within the 5 pcs/m² and the production were not more than 760 kg/ha, that is much lower compare to the neighboring countries [3]. Information on improved farming system compare to the present conventional system with higher stocking density is still lacking. However, there is little research on the improved farming system in the farm scale. That is why the present experiment was carried out for scaling up of stocking density of black tiger shrimp (*P. monodon*) under improved shrimp farming system in Khulna region of Bangladesh.

2. MATERIALS AND METHODS

The experiment was carried out in the farm station of Gazi fish culture ltd. at Koilashgong, Dakop upazilla of Khulan, Bangladesh from March to July 2011. Nine

ponds were selected for three treatments with three replications. All ponds were prepared according to the general pond preparation system. Black soil of the pond was eliminated and pond bottom was allowed to sun dry. The average pH was calculated and required amount of lime was applied to maintain the optimum pH. The ponds were fenced by net to prevent entering other species. PCR tested post larvae at 15 days old (PL15) average weight 0.05 g were stocked in each pond maintaining three different stocking densities i.e. 8 pcs/m² in Treatment 1 (T1), 15 pcs/m² in Treatment 2 (T2) and 22 pcs/m² in Treatment 3 (T3). The experiment was set up according to the completely randomized design (CRD) protocol.

Ponds were filled with water by filtration with small mesh size filter net. The initial water levels in the ponds were maintained at 60 cm level. After filling the pond, crab net was fixed along the pond perimeter. Ponds were bleached with bleach containing 30% chlorine at the rate of 60 ppm [13]. Inorganic fertilizers were applied weekly for producing natural food in the culture ponds at a rate of 28 kg N/ha/week and 7 kg P/ha/week [14]. Different types of chemicals and minerals such as dolomite, sodamix, nutrilake and A-soil were applied to the pond in the three days interval during the pond preparation. After three weeks the ponds were ready for stocking and the seeds were acclimatized to the pond environment. After acclimatization seeds were released slowly to the ponds water.

Commercial shrimp feed were applied in all the treatments (Table 1). Blind feeding was done for first 30 days. Later the feeding was adjusted based on the check tray observation and body weight sampling. Four check trays were installed in each pond for monitoring the shrimp health conditions and feed intake. The feed ration was divided into 4 times a day as 25%, 20%, 30% and 25% in the morning at 6.00 a.m., 11.00 a.m., 6.00 p.m. and 10.00 p.m. respectively. The ingredients of the feed include Fish meal, Cod liver oil, Shrimp/prawn meal, Squid meal, Wheat flour, Binder, Soybean meal, Broken rice, Phospholipid, Cholesterol, Vitamins and Minerals, Di calcium phosphate etc.

Table 1. Composition of commercial feed applied during the culture period

Composition	Percentage
Moisture	11 (maximum)
Crude Protein	38 (minimum)
Fat	5 (minimum)
Fiber	4 (maximum)

Additional water exchange was not done for the first 60 days. After that 12 cm of water was added regularly in every 15 days interval till harvesting and water level was maintained around one meter in all the ponds. Commercial probiotics were collected from local market. Based on the water quality parameters and health conditions of shrimp, probiotics were applied in all the treatments during the culture period (Table 2). Sampling was done in the pond every week during early hours of the day with cast net for checking the healthiness and growth rates. The water quality parameters of the culture pond were regularly monitored. Monthly water sample were collected for analysis. The water level was measured by using a handmade wooden scale with cm marking. The water salinity of the pond was measured by using a hand refractometer (Erma-Japan). The pH, alkalinity, total ammonia nitrogen (TAN) of the pond water was recorded by using pH test kit, alkalinity kit and ammonia test kit respectively (Advance Pharma, Thailand). Water temperature was measured by using a standard centigrade thermometer. The dissolved oxygen (DO) was estimated by DO test kit (Advance Pharma, Thailand). Transparency was observed in terms of light penetration by using Secchi disc.

Economic analysis was done considering all variable costs to the expenditure and respective shrimp sales of the treatment to the gross return. One way ANOVA was done to observe the differences in growth, survival rate, production, FCR values and economic return among different treatments.

Table 2. Name of probiotics used during the experimental period

Name of probiotics	Bacterial Composition	Concentration	Doses
Super P S	Rhodobacter sp, Rhodococcus sp	$\pm 10^9$ CFU/ml	20 Lt/ha
Super Biotic	Bacillus sp		5 Kg/ ha
Mutagen	Enzyme compound		10 g/kg Feed
Zymetin	Enzyme compound		5 g/kg Feed
Pro-w	Bacillus subtilis, Bacillus licheniformis	5×10^{10} CFU/g	250 g/ha
Pro-2	Bacillus subtilis, Bacillus licheniformis, Bacillus pumilus	2×10^{10} CFU/g	10 g/kg Feed

3. RESULTS AND DISCUSSION

Salinity was found between 10-18 ppt during the culture period. The average pH was fluctuated within the range of 7.7 to 9.4 in different treatments (Table 3). DO remained within the suitable limit and DO was recorded maximum 8.5 mg/l and minimum 3.5 mg/l. The temperature of the water was ranged between 27 to 34°C during entire culture period. Transparency ranges from 25 to 55 cm

during the culture period. Total ammonia nitrogen (TAN) was 0.1 to 0.5 mg/l in culture period. The highest was observed in the T3. Most of the time the unionized ammonia level in three treatments were between 0.002 to 0.004. However with increasing the pH and temperature sometimes it was increased. The water quality parameter in different treatments did not show any significant difference among the treatments.

Table 3. Water quality parameters in different treatments during the experiment

Parameters	Treatment 1 (T1)	Treatment 2 (T2)	Treatment 3 (T3)
Salinity (ppt)	10-17	12-18	11-17
pH	7.8-9.2	7.7-9.1	7.9-9.4
Temperature (°C)	27-34	27-34	27-34
Transparency (cm)	26-50	27-54	20-35
Dissolved Oxygen (mg/l)	3.5-8.5	4.0-8.0	3.5-8.5
Total ammonia Nitrogen (TAN) (mg/l)	0.1-0.25	0.1-0.2	0.1-0.5
Un-ionized ammonia (mg/l)	0.004-0.151	0.0024-0.098	0.0039-0.302
Total alkalinity (mg/l)	120-135	125-130	110-130

The growth rates and production data of *P. monodon* are shown in Table 4 and 5. Shrimps were cultured for 144 days. The harvesting size of shrimp varied from 29.0±1.5 g to 38.5±0.5 g. The lowest was observed in T3 that was significantly lower than T1 and T2 (P<0.05). Daily weight gain of shrimp was significantly different among treatments. Treatment 3 showed lowest value than other treatments and the value was 0.20±0.00 g/day (P<0.05). The highest survival was found in T2 (82±4). The survival rate was found lowest in T3 (68±2) that was significantly lower than T1 and T2 (P<0.05) (Table 4). The average production in different treatments showed significant difference (P<0.05). Stocking density 15 pcs/m² and 22 pcs/m² exhibited the highest production of 4635.1±128 kg/ha/crop and 4328.7±138.2b kg/ha/crop respectively, and lowest was observed in lowest stocking density of 8 pcs/m² (2431.3 ±35.2 kg/ha/crop) in T1 (Fig. 1).

Total amount of feed used in different treatments were significantly different among the treatments as the number of PL was different in three treatments (P<0.05). The highest amount of feed was used in T3 (3963.7±77.3 kg). FCR in T3 was significantly different than T1 and T2 (P<0.05). Highest FCR value was observed in T3 and the value was 1.83±0.03. However, there was no significant difference among the FCR value between T1 and T2 (Table 4).

Table 4. Production performance of *Penaeus monodon* under different stocking densities

Parameters	Treatment 1 (T1)	Treatment 2 (T2)	Treatment 3 (T3)
Stocking size (g)	0.05±0.0	0.05±0.00	0.05±0.00
Initial biomass (kg)	2	3.75	5.5
Harvesting size (g)	38.5±0.5 ^a	37.6±0.74 ^a	29.0±1.53 ^b
Daily weight gain (g/day)	0.26±0.00 ^a	0.26±0.00 ^a	0.20±0.00 ^b
Production (kg/ha/crop)	2431.3±35.2 ^a	4635.1±128.4 ^b	4328.7±138.2 ^b
Survival	79±2 ^a	82±4 ^a	68±2 ^b
FCR	1.433±0.03 ^a	1.513±0.02 ^a	1.833±0.03 ^b

Table 5. Economic analysis of *Penaeus monodon* farming under different stocking densities

Parameters	Treatment 1 (T1)	Treatment 2 (T2)	Treatment 3 (T3)
Feed used (kg)	1741.0±21.7 ^a	3508.7±131.3 ^b	3963.7±77.3 ^c
Feed cost (tk)	144503.0±1801.3 ^a	291219.3±10901.6 ^b	328984.3±6412.4 ^c
Probiotics cost (tk)	17333.3±1453.0 ^a	89333.3±6984.1 ^b	88333.3±4409.6 ^b
Chemical cost (tk)	12333.3±1453.0 ^a	32666.7±1453.0 ^b	49333.3±3480.1 ^c
Total Cost (tk)	304169.7±4030.2 ^a	560719.3333±15817.9 ^b	631651.0±7662.5 ^c
Net profit (tk)	650535.0±16679.7 ^a	1242844.6±16576.4 ^b	707766.0±54557.7 ^a
Profit percent	213.7±7.7 ^a	221.8±3.5 ^{ab}	111.3±7.5 ^c

The cost of feed was also significantly different among the treatments. The highest feed cost was observed in T3 (328984.3±6412.4 tk) and lowest was in (144503.0±1801.3 tk) (Table 5). For the prevention and control of diseases probiotics and chemicals were used in all the treatments. The cost of the probiotics in T1 was significantly different than T2 and T3 (P<0.05). The cost of probiotics was lowest in T1 than other treatments. On the other hand the costs of chemicals were significantly different between each treatment. The highest cost was observed in T3 (49333.3±3480.1 tk) and lowest was observed in T1 (12333.3±1453.0 tk) (Fig. 2).

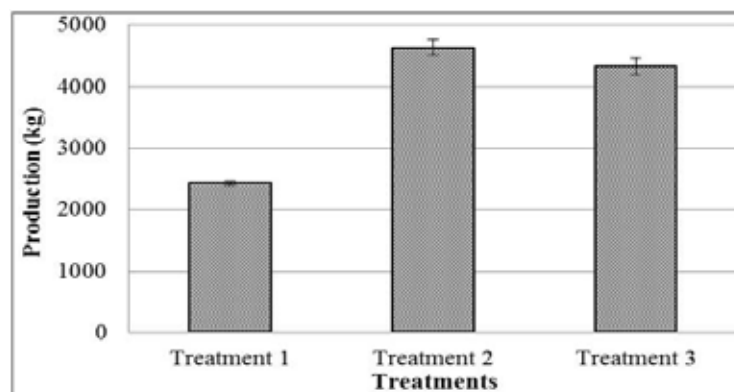


Fig. 1. Production of *P. monodon* in different treatments during the experiment

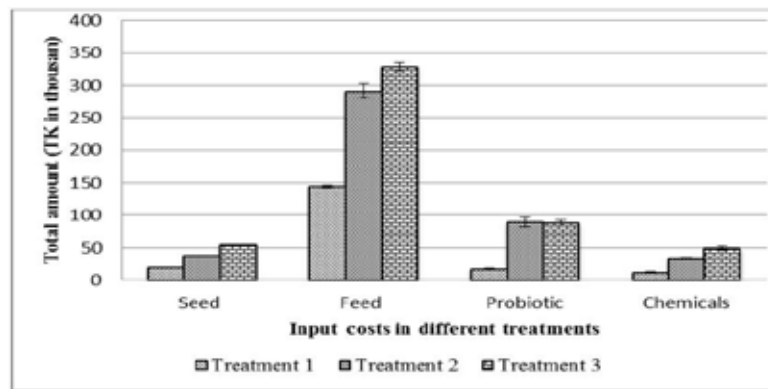


Fig. 2. Major expenses during the experimental period in different treatments

The farming of the black tiger shrimp has been increasing in Bangladesh due to high demand and price in the international market. But there are lot of obstacles in shrimp farming to makes it as a sustainable aquaculture business. To make shrimp farming sustainable, stocking density of post larvae in a pond is determined in accordance with the production capacity of the pond and the culture system, which included the soil and water quality, food availability and seasonal variations, target production. Moreover, farmers experience is also essential. In the present study the production of *P. monodon* was found better in the stocked density of 15 and 22 pcs/ m², that is similar to the statements of Ramanathan et al. [15]. They also found that stocking density between 10-20 pcs/m² was ideal for successful shrimp farms and for the nursery of shrimp Khan *et al.* [16] suggested the stocking density of 100 pcs/m².

All the common water quality parameters were within the range for shrimp. Salinity, pH, Temperature, Dissolve oxygen were within the limit according to Boyd [17-18]. Sometimes with increasing the pH and temperature the unionized ammonia was increased specially in the T 3, It might be due to the large amount of feed used. In such situation proper aeration and probiotics were used to control it. Probiotics might also helpful in controlling the toxic ammonia. Feed is one of the essential inputs in shrimp production and increase profits. Feed management is very important, as feed consumption cannot be directly observed. Excess nutrients which may affect pond water quality and increase cost of farming [19]. In the present experiment the total amount of feed given to the different treatments was 1741.0±21.7 kg, 3508.7±131.3 kg, 3963.7±77.3 kg in T1, T2 and T3 respectively. The FCR value was higher in T3 (1.8) compare to other treatments. Lowest FCR value was found in T1 (1.4). Paul [20] reported that the average food conversion

ratios of shrimp were varying 1.5 to 1.75. Cheekait [21] observed the food conversion ranges were varying from 1.50 to 1.55 when microencapsulated diets were used. Saha et al. [22] observed that the food conversion ratios of 1.31 to 1.58 in low saline ponds and 1.35 and 1.68 in high saline ponds. In the experiment the FCR value of T1 and T2 were within the recommended limit.

The survival rate was 79 ± 2 , 82 ± 4 , 68 ± 2 , in the T1, T2 and T3 respectively. The lowest survival rate was found in highest stocking density and this might be due to the cannibalism, higher level of ammonia and other water quality parameters as in this treatment highest amount of feed were applied. Due to the lack of facility it was not possible to analyze the Nitrate-nitrogen and Nitrite-nitrogen. Krantz and Norris [23] stated that survival rates of 60 to 80% are to be expected for *P. monodon* under suitable rearing conditions. Reddy [24] got 76% survival during the culture of shrimp. The author suggested that 70-80% survival is possible if the ideal conditions are maintained for *P. monodon*. In the present study the average body weight of the shrimps were calculated as 38.5 ± 0.5 g, 37.6 ± 0.74 g and 29.0 ± 1.53 g in T1, T2 and T3 respectively. The average body weight of tiger prawn 35.2 g was found by Reddy [24] that is similar to the present experiment.

In normal practice of shrimp culture in south western region of Bangladesh farmers are using extensive culture system without any supplemental feed. In this experiment we used higher stocking density than the normal practice with commercial feed, probiotics and proper management system. It was found that the production of shrimp was 4635.1 ± 128 kg/ha/crop with stocking density 15 pcs/m². The production of shrimp in the stocking density of 22 pcs/m² was 4328.7 ± 138.2 kg/ha/crop where as in the lowest stocking density (8 pcs/m²) it was 2431.3 ± 35.2 kg/ha/crop. But there was no significant difference among the production shrimp in T2 and T3. In T1 the harvesting size was highest and lowest was in T3. However due to the lowest stocking density in T1 the production was lowest in the treatment.

Treatment two showed best production performance and this might be due to the optimum stocking density for this improved aquaculture practice. However due to the lower survival in T3, the final production was lower the treatment. In all the treatments probiotics and chemicals were used for the prevention of diseases and maintain water quality parameters. Islam and Alam [11] reported that production of shrimp culture for 120 days with stocking density 5 pcs/m², 7 pcs/m², 9 pcs/m²

was 759.14 kg/ha, 670.77 kg/ha and 701.24 kg/ha respectively. In another experiment by Apud et al. [9] showed that production of shrimp was 340 kg/ha with stocking density 4 to 5 pcs/m² for 125 days with supplemental feed and improved water exchange system. However, in these experiments the stocking densities were lower than the present experiment. None of these experiments used probiotics for prevention and control of diseases. The average production of shrimp found in the present study in all the treatments were much more higher than those reported in the above mentioned authors for the shrimp culture in the south-western region of Bangladesh. This might be due to the use of PCR testes post larvae (PL), proper management techniques, use of probiotics, control of water quality parameters and prevention of diseases in appropriate time.

Though there was no significant difference between the total production of shrimp in T2 and T3, but total cost was higher in T3 than T2. That is why the net profit was significantly higher in T2 compare to other treatments. This might be due to the higher cost of seed, feed, chemicals for the highest stocking density and lower harvesting size of shrimp in T3. This indicated that stocking density of 15 pcs/m² is best suitable for improved shrimp farming system that will give better profit to the shrimp farmers as well as will increase the shrimp production in the country.

4. CONCLUSION

With the improvement of culture technology, management system and higher market price of shrimp, it is needed to increase production from the limited resources. Considering the improvement of shrimp culture in neighboring countries and infrastructural facilities and environmental condition in the agro-ecological conditions of the south-western region of Bangladesh, it could be concluded the stocking density of 15 pcs/m² is the best stocking density for improved shrimp farming system to boost up the production of shrimp many folds than the present farming culture system. However, further research could be done on environmental stress within the prescribed stocking density.

ETHICAL APPROVAL

All authors hereby declare that "Principles of laboratory animal care" (NIH publication No. 85-23, revised 1985) were followed, as well as specific national laws

where applicable. All experiments have been examined and approved by the appropriate ethics committee.

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COMPETING INTERESTS

Authors declare that no competing interests exist.

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Oon Fok-Yew and Hartini Ahmad,
School of Business Management, College of Business,
University Utara Malaysia, Sintok, Kedah, Malaysia

The Effect of Change Management on Operational Excellence in Electrical and Electronics Industry: Evidence from Malaysia

1. INTRODUCTION

The rapidly changing landscape in the globalized market has put new demands on organizations. In order to stay ahead of competition, companies need to re-invent itself by injecting new ideas and strategies to achieve business excellence. Excellence can be achieved by meeting or exceeding the expectations of all stakeholders. Furthermore, pursuing excellence keeps companies on right track to achieve their goals and mission. More important, companies today face incredible pressure to continually improve the products quality while simultaneously reducing cost, remain flexible, to meet short lead time delivery, everlasting legal, environmental and social requirements. The ability to achieve these goals depends to a large extent on how the managing its resources against the ongoing changing environment [1].

Recent studies on operational excellence focused on industrial context such as security [2], oil and gas [3], and university [4]. On a contextualized perspective, the Electrical and Electronics Industry is crucial to be revealed particularly on the soft issues which have been neglected in many ways by the previous studies. This is in line with [5] stressed the failure of system implementation such as ERP is because of the lack of attention to the soft issues. Hence, the latest development on the management of change and operational excellence has evolved. The focus is on the enhancing of the customer value and ensures the sustainability (for example, [5,6]. [6] stated the departure from the status quo to a desirable state in accordance to the challenges and opportunities faced by the companies.

Furthermore, the alignment is necessary in the hard and soft factors with the company strategy.

To guide organizations on their journey towards excellence, investigations have largely focused on the identification of critical variables that might better explain how organizational change can be managed to the best effect [7,8]. Therefore, this study will provide an insight in understanding the contemporary influential systems that affect business excellence, particularly excellence in operations. The influential systems may serve as pre-conditions for any companies before embarking on the management of organizational change. The influential systems could be categorized either a 'soft' or a 'hard' [9]. [9] recognised the important of soft dimension in terms of skills, staff, style, system and shared values along with structure and strategy of hard dimension. Furthermore, [10] described hard system have precise objectives that can be expressed in mathematical terms while soft systems are used in relation to human activities where there is unlikely to be agreement about the precise objectives of the system.

In discussing the operational excellence, most of the researchers and practitioners like to relate it with manufacturers. The fact is, manufacturing operation is one of the prime strategic functions in any business. Manufacturing operation whether achieves its competitive position and strategic potential or not solely depends on how it runs its business [11]. Additionally, as manufacturing firms encounter global competition and the pressure to become global, there is a demand for firm's ability to manage its organizational resources with the desire to attain operational excellence at global level.

When review the development in the world business market such as the issues of globalization, fierce competition and technology advancements, [12] suggested that manufacturing organisations in Malaysia need to have an ability to adjust and change to survive the challenging business environment. Organizations need to have a new set of capabilities to ensure their survival and growth in the market. Managers in a firm need to build its own internal competencies to deal with organization issues, change and strategizing. Even through E&E manufacturing sector is an important contributor to Malaysia's economic with manufacturing output, exports and employment, however, Malaysian E&E industry faces significant challenges in maintaining growth with growing competition from Taiwan, Singapore, China and other Asian countries. The E&E's share of Malaysia's exports has

gradually declined from 59 percent in 2000 to 41 percent in 2009 [13]. Therefore, Malaysia E&E's organizations need to have a new set of capabilities to ensure their survival and growth in the market. Managers in a firm need to build their own internal competencies to deal with organization at issues, changes and strategies.

Operational management and performance have been an issue in both academia and industry for over three decades. The literature on operational excellence is growing, but Malaysian manufacturing industry is often lacking in these discussions. In Malaysia, studies of business or organizational performance were focus mainly in Small Medium Enterprises (SMEs) and little research solely in Electrical and Electronics (E&E) manufacturing. Among the studies in Malaysia manufacturing industry included Total Quality Management (TQM) practices [14,15] and best practices [11,16]. Therefore, present study attempts to understand further of Malaysia electrical and electronics firms managing change pertaining to operational excellence. In fact, the electrical & electronics (E&E) industry is the leading sector in Malaysia's manufacturing sector, contributing significantly to the country's manufacturing output (26.94%), exports (48.7%) and employment (32.5%) [17]. Due to that, the finding of this study is important and may contribute to the country economic.

2. LITERATURE REVIEW AND THEORITICAL FRAMEWORK

2.1 Resource-based View (RBV)

The RBV is the dominant theory being used in the empirical literature on organization's internal resources or capabilities and performance. The RBV theory emphasized the use of its internal resource and its developing capability within the firm as a source of competitive advantage. Numerous of its capabilities and resources on which competitive advantage are based, live entirely in its operational function [18]. The RBV deals with the competitive environment facing the organization but takes an '*inside-out*' approach. Its starting point is the organization's *internal* environment. Thus, its internal capabilities determine the strategic choice it makes in competing in its external environment. For example, build up a high performance team for a company to remain competitive and long term success in both economic and social aspects.

On the operational excellence, RBV is found appropriate, presenting internal resources as a crucial element to gaining a sustained competitive advantage and

superior performance that is the operational excellence [19,20]. The current study corresponds to the soft factors in E&E to the operational excellence. The core competencies explain the companies' competitive success based on their competencies [21].

The resource-based view (RBV) highlights the firm as a unique collection of resources [22,23], but emphasizes that not all resources possess the potential to provide the firm with a sustained competitive advantage [24]. Previous literature on the RBV has frequently focused on resources as a stable concept that can be identified at a point in time and will endure over time [25]. RBV focus on strategic context, presenting resources and capabilities as essential to gaining a sustained competitive advantage and superior performance [20].

Furthermore, RBV points to intangible resources as the main drivers of the sustainability of performance differences across firms. In fact, such assets that are scarce, specialized and difficult to trade, imitate, or appropriate are viewed as intangible [19]. A variety of definitions have been offered when refer to these resources [26]. Therefore, the argument established in this study is focus on the managing firm's resources as determinants for operational excellence. The changes of the firm internal resource were identified through the operational excellence indicators.

2.2 Operational Excellence

According to [27], assessment of excellence is the process of evaluating an organization against a model for continuous improvement in order to highlight what has been achieved and what needs improving. European Foundation for Quality Management [28] defines excellence as "outstanding practice in managing the organization and achieving results". [29] argued that operational excellence is not just a matter of cost reduction and quality improvement, but also being smart about how to handle people and resources. It requires solid change management capability and strong leadership to become operational excellence. Operational excellence is also very much dependent on employees' empowerment, ownership and a culture of continuous improvement. Its adoption and introduction usually confronts a company with the need to change the way its employees think and act.

[30] conducted an investigation the use of business excellence in Asian organizations. Organizations in the manufacturing sector accounted for more than

40 percent of the total survey population. Even though organizations believe that deploy business excellence is important in helping them reach key objectives but the Asian region still suffers from some barriers including lack of development of a business excellence culture, a lack of resources and a failure to fully train the staff in business excellence. This study has examined the deployment of business excellence in five Asian countries (Japan, India, China, Thailand and Singapore) would be a gap undertake future study on other Asian countries which maybe at different stages of business excellence maturity.

[31] analyzed the success rate factors of company in achieving the excellence of business subjects in the Slovak Republic. The results showed that success rate factors do not lie in monetary values but in the overall functioning of the company. In other words, in de facto non-economical factors which reflect the level of innovations, employee's satisfaction, customer's satisfaction and social responsibility. Therefore, identification of correct factors of success rate serves more and more for the needs of looking for correct decision of organization. In view of this, non-economical factors of success rate, also known as non-monetary factors are substantiated for the needs of a business company. On the other hand, [32] analyzed the meaning of sustainability and its relation to excellence in an era of management transformation, integration and evolution. They found that sustainability and excellence are two interrelated concepts. These two interrelated concepts have contributed in shifting the national, corporate and sometimes individual mentality to include the world and the society. The rapid enlargement and intensity of environmental and social consequences of the dominant global model push organizations towards an adoption of sustainability challenges and maintain their competitiveness through excellence.

[33] identified important challenges to sustaining business excellence amongst award winning companies in Australia. The challenges included strategy, leadership support, people, process, data and information and customers. [33] also suggested future research could consider different stages in the process of pursuing business excellence, for example, implementation, development, maturity and sustainability. In recent study, [34] examined factors that lead to sustained excellence whether they are "evergreen" or stayed the same over time. The eight factors included organizational design, process, strategy, technology, leadership, individuals and roles, culture, and external orientation. The finding shown that nearly

90 percent of the factors that create excellence found in studies done in and before 1995 are also found in studies done after 1995. Although the characteristics of factors may shift from time to time, however, those factor found to seem qualify as "evergreen of excellence" that are always crucial for creating and maintaining a high performance organization. In this respect, the research into factors that create excellence, as found in the earlier or recent literature, are constant over time.

In this study, results from application of operational excellence are focused operational performance and organizational sustainable performance. Operational performance reflects the performance of internal operations of a company in terms of quality improvements, flexibility improvement, delivery improvement, productivity improvement, cost and waste reduction. The organizational sustainable performance indicator measures in present study are environment performance and social performance, while the financial measures such as sales growth, profit growth, return on equity (ROE), return on assets (ROA) and gearing [35] will be ignored. In fact, many E&E manufacturing firms in Malaysia are owned by foreign investors and may listed in the their home country, thus the respondents may not be privy to the information and data related to financial performance. Although performance can be measured either as financial performance or as operational performance, operational priorities are more relevant than financial goals at the plant level [36]. It is therefore the discussed performance indicators (quality, time, flexibility, cost and sustainability) will be used to measure firm performance in achieving operational excellence. More specific, the dependent variable, operational excellence will be operationalized by quality, flexibility, speed, cost, social and environmental in present study. Moreover, managing people, technology, leadership, strategy, structure, culture and employees' involvement to change are important variables affect the operational excellence.

2.3 Evolution of Excellence

During the last 30 years, both definition and sustainability of excellence evaluations have undergone repeated changes. [37] have synthesized 'excellence' into five main stages and defining each excellence stage in details in literature. The synthetic conclusion of excellence is shown in Fig. 1.

Stage	Synthesized	Time	Explanations
Excellence 1.0	"Soft is important"	The early 1980s	Peters and Waterman (1982) reminded the world of professional managers that 'hard is soft'. In order to obtain hard results organizations need to take into account the soft side of the firm. Hard factors: system; structure; strategy; Soft factors: shared values; skills; style; staff.
Excellence 2.0	"Change"	1987	<i>Thriving on Chaos</i> (Peters, 1987). A new type of excellence is required: "Excellence firm don't believe in excellence - only in constant improvement and constant change".
Excellence 3.0	"Learning"	1990	<i>The Fifth Discipline</i> of Peter Senge (1990). Senge's analysis is at the base of a renewed interest for the concept of "learning organization".
Excellence 4.0	"Excellence models"	1990s	Increasing interest in "Excellence model" can be seen during the 1990s. Firms use these models to guide their efforts towards becoming "excellent" organizations.
Excellence 5.0	"Integrated development"	2000s	Difference schools of thought (e.g. social-technical, social-economic school) try to merge different approaches in order to better respond to management and organizational challenges, or the changing management paradigm.

Fig. 1. Synthetic Conclusion of Excellence

Source: Adapted from Hermal and Pujol (2003)

[37] further explain that the series of excellence stages proposed are only tentative and could certainly be disposed in many different ways. They just hope that the different points addressed are at the base of production debate. In authors view, operational excellence via best practices in business organizations seems to be a natural evolution going forward. As present, the term of *operational excellence* is widely used approaches to measure the business excellence either by the corporations themselves, management consultants, academicians, government authorities, etc. Furthermore, the very definition of "operational excellence" has been continuously modified to accommodate for the context of rapid changes in the global business environment.

2.4 Change Management

Due to the fact that the future and success of every organization depends on how well manager handle change [38], therefore, discussion on this research is assessing the relationship between change management and operational excellence. In addition, the integration of soft systems to predict operational excellence may not have a profound understanding by both academic and practitioners. This paper focuses on the soft systems in the E&E industry.

In the past organizational changes processes, many organizational only focus their efforts on hard factors. However, [9] argued that most successful companies work hard at the soft factors. Indeed, the soft factors can make or break a successful change process simply because we cannot impose hard systems on the organization without considering the effect on people [10]. With this approach, the researcher attempt to integrate the 'soft' elements under the Management of Change (MOC). Based on literature review, three soft elements were identified in this study were included leadership style, human resource and organizational culture.

2.4.1 Leadership style

Leadership is the other key component of successful change. Leadership is the first criterion of the European Foundation for Quality Management (EFQM) Excellence Model, a model of organizational excellence which is used by more than 30,000 organizations across Europe [39]. While change management depends on leadership to be enacted, specifically, the leadership style that is primarily concern with the capabilities required enacts change successfully [40,41]. Recent study by [42] further addressed the importance of success in enacting change is a crucial issue faced by today's organizational leaders of today. Indeed, most of the research on the leadership paradigms has focussed on its relationship to followers [43,44]; the success of TQM programs [45]; organizational outcomes such team performance [46,47] and financial performance [41]. Based on researchers' knowledge, there were limited literatures done on leadership styles and its impact on operational excellence in manufacturing industry, especially in the Malaysian setting.

Leadership has been recognized as a major factor on organization success and this has been empirically validated throughout many fields. However, a

leadership style in the context of change management and its impact on operational excellence in manufacturing industry has not been as widely researched. Moreover, a transformational style of leadership is perceived can produce positive organizational change and create exceptional performance than transactional and laissez-faire leadership [40,48,49]. In the present study, we are interested in examining the positive impact of transformational leadership style on operational excellence. Hence, the researchers offer the following statement of hypotheses:

H1: The inclination towards the transformational leadership style leads to achieving operational excellence.

2.4.2 Human resource

Any change program would revolve around people, changing their mind set, behaviour and motivational level. Human resource has always been central to organizations, to-day it has taken on an even more central role in building a firm's competitive advantage. Success increasingly depends on "people-embodied know-how". Thus, includes the knowledge, skills, and abilities imbedded in an organization's member. [38] argued that Human Resource is an intellectual asset, the sum total of the knowledge, skills and competencies that an organization processes and channelizes for sustained organizational excellence. Excellence is surpassing on outstanding achievement, achievable by the use of Human resource strategies and practices as tool.

[50] suggested the future role of the Human resource function should focus on helping their organization to learn how to build a capability to change. In authors view, the human resource practices are Human resource tools use by organization to achieve excellence. It helps to develop human capabilities and organizational competencies to achieve success. However, very little attention has been paid to address the impact of managing human resource change on operational excellence. The universal use of Human resource practices such as recruitment and selection, training and development, performance appraisal and compensation and benefits [38,51,52,53] could be explored in present study to predict operational excellence. New knowledge generate from this study could inform theory building efforts in the Human resource field, particularly as it related to human resource-based view to meaningful organization outcomes and in due course excellence. Therefore, we

hypothesize that human resource practices lead to positive impact to operational excellence.

H₂: Effectiveness of human resource practices leads to an impact on achievement of operational excellence.

2.4.3 Organizational culture

Operational excellence is an enterprise culture that improves the way a corporation delivers products and services to its customers. Operational excellence calls for more than subject matter expertise and a talented internal team. It requires a deep commitment and a culture of change. Changing to a culture of continuous improvement usually requires a paradigm shift. This change requires taking risks, opening up the firm culture and a great capacity to learn [54]. [55] suggested that a link between corporate culture traits such as consistency, mission, involvement, and adaptability and business performance exists. These four different aspects of culture can be stressed by different functions. Its *consistency* and *mission* either tend or to encourage or promote stability. However, the *involvement* and *adaptability* allow for change. Furthermore, consistency and involvement see culture as focusing viewpoint on internal dynamic of the organization. It mission and adaptability see culture as a way of life in addressing the relation between the organization and its external environment.

The present study embraces on managing change and focus on internal organization, therefore, the *involvement trait* (Internal Focus) is the best dimension to evaluate its effecting desired change within organization [55,56]. This trait is measured by the three indices namely empowerment, team orientation and capability development. In addition, [57] found empirical support for the involvement view of culture, higher levels of employee participation were correlated with better organizational performance. Whilst organizational culture has been researched worldwide, little research has been done in Malaysia, with its unique culture and concentrated business environment. This leads to the following hypothesis:

H₃: Higher levels of individual involvement cultural trait leads to an impact on operational excellence.

Overall, literatures indicate that firm managing change is vital in ensuring competitive advantage to the firms [58]. In essence, effective approaches in organizational change will involve not only one system but also have to understand

other relevant systems of entire organization. Moreover, change management and these soft systems have not being integrated in any research which develop new knowledge in the study of operational excellence. Integrating change management maturity with associated soft systems in order to remain competitive, is absent in most Operational Excellence initiatives.

2.5 Hypotheses and the Research Model

Based on the previous literature, three hypotheses were proposed. The relationship among the various factors discussed in this literature is depicted in a framework as showh by Fig. 2 below. Based on the literated syntheses, the authors develops a linkage that the change management systems are likely to have impact on operational excellence of the organization only in situations where change management practices are implemented.

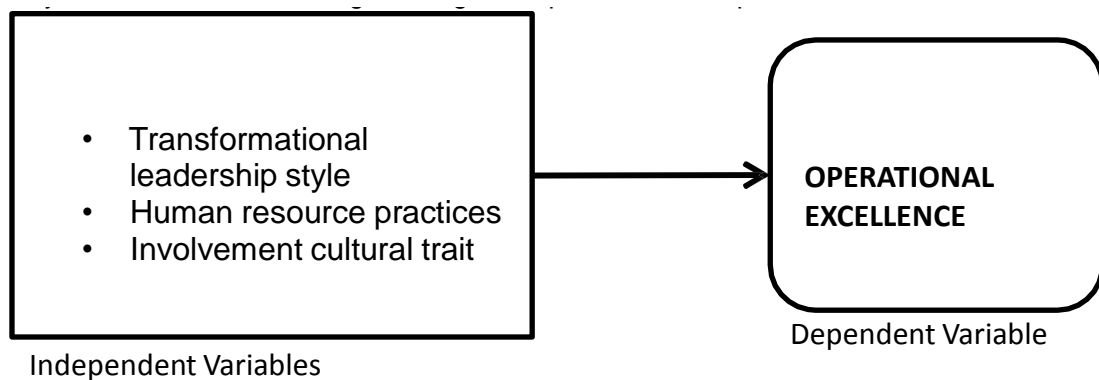


Fig. 2. Theoretical framework

3. RESEARCH METHODOLOGY

3.1 Population and Sample Size

The nature of the problem in this study determines that it leans more towards a causal. The main goal of causal research is to identify cause-and-effect relationship among variable [59]. The literature review was carried-out in sufficient details to provide the understanding on the change management and operational excellence. The researchers also investigated how the previous studies done in order to study the relationship of both change management and operational excellence. Therefore, the researchers believed that it is appropriate to consider the manager who involved in the manufacturing operations to give inputs on the

subject matter. In this context, samples of the population are drawn from the FMM-MATRADE Industry Directory Electrical and Electronics Malaysia 2007/08 [60] and Federation of Malaysian Manufacturers (FMM) Industry Directory 2012 of Malaysian Manufacturers [61]. The sampling frame of this study is the manufacturing companies from electrical and electronics industry situated in Malaysia. By using systematic random sampling method, 321 firms were identified from population of 1952 firms. All questionnaires were distributed to the respondents using postal mail. The unit of analysis for this study was organizational where one respondent represent one organization. Between February 2013 and June 2013, a total of 121 usable questionnaires were obtained which yielding a response rate of 37.7 percent. Therefore, the response rate was normal and acceptable as compared with past studies in Malaysia.

3.2 Instrument Development and Measurement

The survey questionnaire was developed based on early studies [35,55, 57,62,63,64,65,66]. The Table 1 summarizes the reliability test of the measures. The results showed that all the Cronbach's Alphas measures were above the lower limit of acceptance ($\alpha > .70$). Therefore, all the measures were highly reliable [67].

Table 1. Summary of variable measurement

Variables Names	Cronbach's Alpha	N of Items	Authors
Operational excellence	.942	23	Laugen et al. (2005); 31* Hubbard (2009); Kuruppuarachchi & Perera (2010).
Transformational leadership style	.915	12	Bass & Avolio (1992).
Human resource practices	.843	12	Snell & Dean (1992)
Involvement cultural trait	.772	9	Denison et al. (2003); You, et al. (2010).

In a Likert scale, each respondent will be asked to indicate the extent of each statement on a five-point. The options given in the questionnaires for Section A are "strongly disagree (1)"; "disagree (2)"; "Neutral (3)"; "agree (4)" and finally "strongly agree (5)". For Section B, respondents are requested to rank their answers to 5-points Likert-type interval scale, ranging from 1 for "worst in industry (1)"; 2 for "bad in industry"; 3 for "average in industry"; 4 for "good in industry" and 5 for "best

in industry". Thus, researchers were able to solicit answers about the given statement through a set of response keys.

3.3 Respondent's Profile

3.3.1 Profile of the respondent companies

The E&E industry is further breakdown to four sub-sectors which included (1) consumer electronics (2) electronic components (3) industry electronics and (4) electrical products [16]. As presented in Table 2, the majority of the manufacturing firms that responded to the survey were under the electronic component sector which comprised 43.8 percent of the number of respondents, followed by those in industrial electronics (24.8%), consumer electronics (15.7%) and electrical products (15.7%).

Table 2. Respondents by sub-sector

Sub-sector	Frequency	Percent	Valid Percent	Cumulative Percent
Electronic components	53	43.8	43.8	43.8
Industrial electronics	30	24.8	24.8	68.6
Consumer electronics	19	15.7	15.7	84.3
Electrical products	19	15.7	15.7	100.0
Total	121	100.0	100.0	

3.3.2 Profile of the respondents

For ease of understanding is a tabulation of the profiles of the respondents as per Table 3. In terms of gender, the majority of the respondents were male which comprised of 71.9 percent as compared to their counterparts at 28.1 percent. Generally, 45.5 percent of the respondents are from the age between 36 and 45 followed by age above 46 (34.7%), then age between 18 and 35 with a response if 19.8 percent. This showed that majority of the questionnaire were answered by the middle and senior management from manufacturing companies. Most of the respondents (33.1%) have less than 5 year's tenure employment to their current companies. In contrast, 31.4 percent of the respondents have more than 16 years attaching to their current companies. The remaining respondents were between 6 to 10 years are 21.5 percent and between 11 to 15 years are 4.0 percent respectively. Almost half of the questionnaires are answered by the managers (44.6%). Other respondents, which represent 19.0 percent of senior executive or senior engineer, 5.8 percent of section head and assistant manager respectively,

14.0 percent of senior manager, 6.6 percent of directors, 4.1 percent of director and of professional. The professional group includes Consultants and Advisors. The results imply that majority of the E&E manufacturing companies have followed the requirements as stated in the cover letter which attached with the questionnaire.

Table 3. Profile of the respondents

Characteristics		Frequency (n = 121)	Percent (Total 100%)
Gender:	Male	87	71.9
	Female	34	28.1
Age:	Between 18 to 35 years	24	19.8
	Between 36 to 45 years	55	45.5
	Above 46 years	42	34.7
Number of years working in this company:	Less than 5 years	40	33.1
	Between 6 to 10 years	26	21.5
	Between 11 to 15 years	17	14.0
	More than 16 years	38	31.4
Position held:	Senior Executive I Senior Engineer	23	19.0
	Section head	7	5.8
	Assistant Manager	7	5.8
	Manager	54	44.6
	Senior manager	17	14.0
	Director	8	6.6
	Professional	5	4.1

3.4 Factor Analysis

The factor analysis was based on principal component analysis (PCA) with Varimax rotation for all components. In determining the factorability of the dimensions, the Bartlett's test of Sphericity had to be significant and the Kaiser-Meyer-Olkin (KMO) Measure of sampling adequacy had to be more than 0.50 in order to be acceptable [67]. The following Table 4 shows the results of all variables. The Kaiser-Meyer-Olkin (KMO) measures of sampling adequacy from 0.692 to 0.906 which all above 0.5 acceptable level [68]. All results indicate that factor analysis can be conducted on the data [62,69]. Moreover, there is a sufficient correlation among the analyzed items when Bartlett's test was significant (Sig.0.000).

Table 4. KMO and Bartlett's test

		OPX	TLS	HRP	ICT
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.881	.906	.797	.692
Bartlett's Test of Sphericity	Approx. Chi-Square	1590.599	757.645	555.269	410.166
	Df	190	66	66	36
	Sig.	.000	.000	.000	.000

OPX=Operational excellence; TLS= Transformational leadership style; HRP= Human resource practices; ICT=Involvement cultural trait

3.5 Data Analysis

The data analysis tools such as Statistical Package for Social Science (SPSS) software will be used to process the data obtained from this survey. Responses on all parts of the questionnaire will be analyzed using frequency, means, standard deviations, reliability, and inter correlations to calculate different characteristics of the data. Factor and reliability analyses to test the goodness of measures, descriptive statistics to describe the characteristic of respondents and correlation analysis to describe the inter correlation among the variables. Moreover, multiple regression analysis was used to achieve the objective with testing the hypothesis.

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis

The means and standard deviations of each variable were shown in Table 5. The results of Pearson's correlation test for independent variables and dependent variable was shown in Table 6. This result revealed that all the independent variables and dependent variable were positive and significant at a level of 99 percent. The strength of relationship varies from lowest at 0.561 and to the highest at 0.639. These findings support the notion that change management systems as predictor variables had a positive correlation and linear with operational excellence. On the other hand, the correlation was also further evidence of validity and reliability of the measurement scales used in this study.

Table 5. Means and standard deviations

	N	Mean	Std. Deviation
Transformational leadership style	121	3.6515	.56765
Human resource practices	121	3.7576	.48233
Involvement cultural trait	121	3.7530	.41857
Operational excellence	121	3.7373	.48899

4.2 Testing of Hypotheses

In order to measure the combined effect of all the soft systems in the change management towards operational excellence, the analysis of multiple regressions was performed on the variables in question. Refer to Table 7, results from the analysis of multiple regression show that among soft systems of change

management which were proposed to have a significant relationship with operational excellence, all of them namely transformational leadership, human resource practices and involvement cultural trait were significantly supported.

Table 6. Pearson's correlation test for independent variables and dependent variable

	Transformational leadership style	Human resource practices	Involvement cultural trait	Operational excellence
Transformational leadership style	1			
Human resource practices	.586**	1		
Involvement cultural trait	.561**	.586**	1	
Operational excellence	.616**	.639**	.563**	1

** Correlation is significant at the 0.01 level (2-tailed)

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

Table 7. Results of multiple regression analysis of change management and operational excellence

Variable	Coefficient			Model Summary
	B	T	Sig.	
Transformational leadership style	.296	4.160	.000*	R square: .505
Human resource practices	.323	3.832	.000*	Adjusted R square: .493
Involvement cultural trait	.211	2.101	.038*	F: 39.839, P < .000 df1: 3, df2: 117 Durbin-Watson: 1.996

** Correlation is significant at the 0.01 level (2-tailed)

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

All the soft systems were found to have positive and significant ($p < 0.05$) relationship toward operational excellence. This statistical result suggested that a human resource practices, with Beta value of .323 has the strongest effect (most important) on operational excellence in this study, follow by transformational leadership style (important), with Beta value of .296. Organizational culture has least important, with Beta value of .211 to produce sufficient support of significance in its relationship towards operational excellence.

In *Model Summary* at Table 7, the adjusted R Square (.505), which is explained the change management (composite independent variables) accounted 50.5 percent of the variance (R squared) in operational excellence (dependent variable). According to [70], R Square between the range of 1.0 to 5.9 percent is

consider as small size, follow by the moderate range between 5.9 to 13.8 and range which is above 13.8 percent is consider large. In the result of multiple regression analysis, the R Square, .505 means 50.5 percent consider large effect. Therefore, the results explain that is 50.5 percent of the variance (R Square) in operational excellence has been significantly explained by the three independent variables under change management.

4.3 Discussions

This paper is focused on linking between the change management to operational excellence within E&E companies of Malaysia. Furthermore, the paper organises the burgeoning change management literature soft systems, which are transformational leadership, human resource and organizational culture. The purpose of this study is to give an increased understanding of the operational excellence in Malaysian manufacturing industry and its implication on activities concerning organisation and managing change.

The respondents were top managers and those identified as responsible in running the companies which closely linked to manufacturing operations including General Manager, Operation Manager, Factory Manager, Production Manager, Engineering Manager, Manufacturing Manager, Planning Manager, Materials Manager, Lean Manager and Project Manager (involve in Change Management or Continuous Improvement programs). So this study cannot be used to represent the operational of others industry because the effect of change management to operational excellence could be different.

Responding to the hypotheses, this study found all three soft systems of change management have effect on the achievement of the company's operational excellence. In respond to the findings, *transformational leadership style*, *human resource practices* and *involvement cultural trait* were found to have an effect on the achievement of operational excellence for Malaysian E&E manufacturing companies. The hypotheses were positive and significant and thereby confirmed.

This study has provided evidence that transformational leadership style have a significant positive effect on operational excellence. The hypothesis, H1 accepted is not surprising because strong theoretical and practical support transformational leadership is enacting change successful. Present study also concur with the findings of past study by [48,49] who claimed that the transformational leadership

style can produce positive organizational change and create exceptional performance. Furthermore, transformational leadership is directly correlation to long-term high performance [71], therefore, towards business sustainability.

This study adds another perspective into the earlier findings conducted in Malaysia, [41] found that the transformational type of leaders will give impact to company performance if best practices management takes place. Under these argument, transformational leader who promote the adoption of best practices leads to superior performance. This finding is consistent with the results from prior studies [11,16,62,72] on companies that adopted best practices showed better operation performance. In this study, the effect of transformational leadership style on achieving operational excellence is supported. In other word, lower and middle management of Malaysian E&E manufacturing companies perceived their top management use transformational leadership style in pursuing excellence.

The statistical result also revealed that the human resource practices have effect on operational excellence of Malaysia E&E manufacturing companies in this study. Therefore, the hypothesis, H₂ is fully supported. This finding is consistent with earlier studies by [38] who argue human resource is an intellectual asset that channelizes for sustained organizational excellence and has a positive effect on the firm's performance [73]. This study also support past studies that the human resource practices included recruitment and selection, training and development, performance appraisal and compensation and benefits, are human resource tools use by organization to achieve excellence [38,51,52,53].

The aforementioned results have also provided the required empirical support that influence of human resource practices indicating positive and significant relationship on organizational performance in the area of research for the past 25 years [74]. The finding of present study provides empirical evidence again on the role of human resource practices on the achievement of operational excellence. Obviously, the human resource has taken into account as a crucial factor in E&E organizations to develop internal capabilities for better fit with changing environment.

The result indicates that the involvement cultural trait, H₃ does significantly have impact in achieving operational excellence. The involvement cultural trait comprises of empowerment, team orientation and capability development did played a major role in the effectiveness of operational excellence in E&E firms. This finding appears to be consistent with previous study that argued involvement as

the most important dimension of culture for firms whose focus was employee satisfaction and overall performance [75]. Past studies by [76] stated that organizational culture is a key foundation for the high-performance work practices and employee involvement such as teamwork, capability development and empowerment positively influence outcomes measures. For example, high performing firms motivate their employees to achieve superior results by making decisions at the lower level. In addition, high performing firms have organizational structure based on teams, therefore they encourage teamwork. Moreover, these firms continually invest in improving their employees' skills. Hence, the high levels of employee involvement in the company's activities did play an important and integrated role in achieving operational performance outcomes.

The success of organization lies on how well the employees are empowered to take decisions through building their capabilities and harnessing their skills. Indeed, an organization with a high level of employee involvement will develop the employees' capability at all levels and create a sense of ownership, responsibility and loyalty toward their organization. Another plausible reason of significant relationship between involvement cultural trait and operational excellence was in the way the culture trait was measured. Past research showed that internally focus traits involvement is generally better predictors of operating performance measures such as quality, flexibility, employee satisfaction [57,77] and change [56]. The finding of present study pointed to high involvement of employees as relatively important influential culture traits in determining operational excellence in the context of the Malaysia E&E industry.

Furthermore, present study supports resource-based view (RBV) theories. The RBV on inimitable recourses and dynamic capabilities suggest that organizational should have their own competence according to knowledge resources. These competencies must be rare and unique. Moreover, researchers also found many of resources and capabilities on which competitive advantage is based reside in the operations function [18]. Firstly, RBV may assist operations reach up to the leadership of excellence. Secondly, RBV helps to providing clear rules to develop and train human resource and retain talents in a systematic manner. Thirdly, the involvement cultural trait that is originated from organizational culture is unique and hard to imitate by any rival firms. Thus, the argument established in this

study was transformational leadership style, human resource practices and involvement cultural trait.

5. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

5.1 Summary of Finding

This study is on the relationship among the change management and operational excellence. The multiple regression results revealed that the transformational leadership style, human resource practices and involvement cultural trait statistically significantly and positive relation with the achievement of operational excellence. Approaches to theory uses, this study utilize resource-based view.

5.2 Limitation and Directions for Future Research

The conclusions drawn from present study should be interpreted in a limited way, which would potentially represent opportunities for further exploration in future research. First, this study is a cross sectional study, as it is carried out once and represents the issue at a specific time. Therefore, future study may look into a longitudinal study in order to expand the findings that are pre-changes and post-changes. Second, this study used the Electrical and Electronics (E&E) manufacturing firms that have high foreign ownership but also many restrictions in responding to the study. It is suggested that using Malaysian local owned firms like small-medium enterprise (SME) or small-medium industry (SMI) may add more insight. In addition, future study in service industry will add richness to the area of interest. Third, this study had proven the important of few change management systems in affecting the achievement of operational excellence. In contrast, further studies could focus on others systems or dimensions which have been excluded in this study. Fourth, future study can also investigate the change management due to external environment. Perhaps it will be able to provide a new insight on how firm react to external force and also improve the operational performance.

5.3 Implication and Conclusion

An evident in the data analysis findings above, this study has provided several contributions to practice, methodology and theory. The practical implications for E&E manufacturing organization is success in change initiatives depends on proper integration of transformational leadership style, human resource practices and

involvement cultural trait. Hence, management is advised to establish policy, systems and process that integrate three soft systems in their planning and strategic direction. On the other hand, the finding is hoped to provide the managers with the insight in order to assist them to identify the appropriate operational excellence model based on organizational needs. As for methodology contribution, this study was add-on sustainability performance metrics (non-economic measure) on top of the conventional performance metrics (economic measure) in a composite performance index by averaging scores across the six performance indicators. Since sustainability is very important aspects of today business environment [35,78], therefore, this methodology can be validated in future research to measure operational excellence or business excellence. The new measurement method in this study could fill up the perceived performance gaps by merging both economic and non-economic measures. From the theoretical perspective, it is discovered the originality in terms of the model to reflects a growing interest in extending operational management paradigms to emerging in developing country context, particularly on the knowledge on the insight of change management and operational excellence. In contrast to most previous studies identified each of system separately, this paper will be among the first few studies that examine the soft systems of change management to predict operational excellence. The integration of soft systems in this study has developed new knowledge that could assist theory building efforts particularly in the operation management field and organizational change management. The researcher might use the findings for further research.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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SECTION 5

Medicine, Pharmacy, Biology & Chemistry

Rodney P. Jones,

Healthcare Analysis & Forecasting, Camberley, UK

Infectious-like Spread of an Agent Leading to Increased Medical Admissions and Deaths in Wigan (England), during 2011 and 2012

ABBREVIATIONS

CI: Confidence Interval; CMV: Cytomegalovirus, an immune modulating herpes virus; ED: Emergency Department; ICD-10: International Classification of Disease, 10th revision; LA: Local Authority; NHS: National Health Service; MSOA: Mid Super Output Area, a collection of OAs containing around 5,000 population; OA: Output area, smallest area to which Census data is aggregated, with around 500 population; ONS: Office for National Statistics.

1. INTRODUCTION

The Wrightington, Wigan & Leigh NHS Foundation Trust (the Trust) is a medium sized acute hospital situated in the town of Wigan on the outskirts of Greater Manchester, England. Over 90% of medical admissions are for residents of the Wigan Local Authority (LA). In common with many other parts of the UK during 2012, it experienced an unexpected and unexplained increase in Emergency Department (ED) attendances, medical emergency admissions and consequent bed pressures which coincided with an unexpected and unexplained increase in deaths across England and Wales lasting for around 18 months [1-2]. This was a repeat of similar unexplained increases in deaths which peaked in 2003 and 2008 [3]. On all three occasions deaths showed distinct spatiotemporal spread across the whole of the UK [4-6] and are highly age, gender and condition specific [7-9]. While the peaks in death are the same magnitude as a *large* influenza epidemic, unusual levels of influenza were absent and no adequate explanation has ever been given.

In 2010, a report by the Nuffield Trust [10] had suggested that such increases may partly be due to a lowering of the acute threshold to admission especially for very short stay admissions. The increase in short stay admissions in England coincided with the introduction of the 4 hour target for ED waiting time in 2001 and

involved the convergence of two developments. The first was the introduction of specialist assessment units in pediatrics, surgery and medicine where patients were admitted directly into a focused assessment and treatment environment that was part of emerging good practice. These developments collided with the introduction of the 4 hour target where, in some instances, it became easier to admit patients to assessment units to avoid breaching the target [11-14]. Hence the trend in same day stay ‘admissions identified in the Nuffield Trust report were not deliberate acts of lowering the acute threshold *per se* but rather due to the difficulty of aligning the NHS data definitions and the HRG tariff during a period of rapid change [15-16]. However, while such factors distort the national picture, at a local level they become less significant as soon as a relative stable admission process is in place, and this was the case in the Trust at the time of this analysis.

Other analysis of the trends in emergency admissions has determined that such sudden and unexpected increases have occurred previously, and are specific to the medical specialties. They are marked by a set of diagnoses which appear to be immune sensitive, increase with age, have a degree of gender specificity, occur simultaneously with an increase in deaths, GP referral, ED attendance (along with a sudden change in arriving case-mix) and medical bed demand, and occur across the whole of the UK and in other Western countries [17-38]. More curiously they are also associated with a cycle in the gender ratio at birth [39]. Recent reviews of the available studies have suggested that these events could be due to infectious outbreaks involving the herpes virus, cytomegalovirus (CMV). This virus has a formidable array of powerful immune modifying strategies which have been implicated in autoimmune diseases, cardiovascular disease, certain cancers, hospitalization and death [see reviews 40-42].

With respect to the observed trends, it has been noted that deaths in England and Wales unexpectedly increased around February of 2012 and continued at this higher level to around June 2013 after which they reverted back to the more usual levels [1-3]. This increase did however show high granularity with East Cambridgeshire (East of England) showing a 14% reduction (2012 vs 2011) through to a 21% increase in Bromsgrove (West Midlands) [2]. The position with respect to an increase in all-cause mortality in Wigan and surrounding LA s is given in Table 1 and suggests that Wigan and several (but not all) adjacent LA s were a local ‘hot

spot, especially for the 80+ age group, i.e. where the infectious-like event had an early rather than later initiation [2-3].

Table 1. Change in deaths between 2011 and 2012 calendar years in Wigan and surrounding Local Authorities

Local authority	Age 65+	Age 80+
Warrington	10%	13%
Chorley	4%	12%
Manchester	4%	10%
Wigan	8%	8%
Salford	7%	7%
Blackburn with Darwen	7%	7%
St Helens	5%	5%
West Lancashire	-2%	4%
Bolton	4%	0%
South Ribble	-2%	-2%

In England, census and other data are aggregated at output area (OA) level. Each OA contains roughly 500 head of population of the same social group and is then aggregated up to progressively larger geographies. Aggregation to what is called a Mid Super Output Area (MSOA), which contains around 5,000 head of population, has sufficient emergency medical admissions to conduct statistically robust analysis of trends over long time periods. In an attempt to resolve the issue as to whether we are dealing with a hospital admission threshold phenomena or a new type of infectious outbreak, this study will investigate the timing and extent of increase in emergency medical admissions within the hospital catchment population at MSOA level over the period 2011 to 2013. This is an extension of previous work analyzing small area infectious-like spread following the 2008 event in the North East Essex area of England [43].

2. MATERIALS AND METHODS

Monthly counts of deaths (all-cause mortality) from January 2006 to February 2014 for the residents of the Wigan Local Authority area were obtained from the Office for National Statistics (ONS). Daily data for emergency admission to the assessment unit and to the medical group of specialties (general and elderly medicine, gastroenterology, hematology, rheumatology, oncology, respiratory medicine, nephrology, endocrinology, rehabilitation), were obtained as part of a review of medical bed requirements at the Trust and are used with permission. Admissions did not contain any patient identifiable information, and contained date of admission, age at admission

(whole years), MSOA code, length of stay of the entire inpatient period and the admitting diagnosis as coded using the International Classification of Disease (ICD) 3-digit code. Distance of each MSOA to the hospital site in Wigan was calculated as straight line distance. Data for hospital admissions does not extend beyond March 2013.

All trends were analyzed using running 365 day or 12 month sums. This method is particularly suited to identifying the initiation point for a sudden step-like increase in activity which would arise from an infectious outbreak involving a persistent agent or from a step increase in admissions due to a reduction in admission threshold. The method is also particularly suited to the analysis of data which contains seasonal patterns since the running 12 month sum removes the underlying month-of-the-year patterns allowing comparison to be made between a time-series of 12 month totals. To determine the point of onset and value of any step-like change comparison is made between two successive 12 month periods, i.e. January to December 2012 versus January to December 2013. This process move forward one month at a time until the maximum percentage difference is reached and a visual check is performed that the end of a 12 month long ramp has been identified.

The potential contribution from Poisson variation to the value of any step-change was evaluated using Monte Carlo simulation for the ratio of two Poisson distributions, i.e. the likelihood of a change in a running 12 month total arising from chance. The 97.5% confidence Interval (CI) was calculated with 200,000 trials using Oracle Crystal Ball for an annual total (N) of between 100 and 700 in increments of 100. The resulting 7 values were plotted using Microsoft Excel and follow a power function where $97.5\% \text{ CI} = (1.965 \times N^{-0.0891}) - 1$. This equation was then used to calculate the 97.5% CI associated with the step-increase observed in the various locations. Given the fact that a Poisson distribution becomes less skewed at higher numbers, when $N > 1,000$ then the $97.5\% \text{ CI} = 2.7 \times n^{-0.5}$ [43].

3. RESULTS AND DISCUSSION

While deaths in the UK have been observed to peak in the 2003, 2008 and 2012 calendar years it is recognized that this is part of a far wider spatiotemporal spread in deaths which generally commences earlier in Scotland than England [1-6], although within England there are a range of initiation dates at LA level which overlap

with Scotland. For consistency these infectious-like events will be referred to by the calendar year in which deaths reach their peak across the whole of the UK. Up to the present international monitoring of increased death has largely focused on the winter months when seasonal influenza and other winter respiratory infections typically lead to spike increases in death and methods have been developed to detect such spike events [1]. However it has been consistently noted that these outbreaks lead to semi-permanent step-like increase in deaths and medical admissions [1-4,17-25] and a method suited to detecting step-like increases therefore needs to be employed. In a running 12 month sum, the point of initiation of a step-like increase is seen at the base of a 12 month long ramp. A running 12 month total trend for deaths (all ages) in Wigan is presented in Fig. 1 where the increase in deaths associated with the 2008 and 2012 events can be seen. The full extent of the increase is seen at the point 12 month after the start. If the step-like increase continues for more than 12 months then a plateau will follow as can be observed in Fig. 1. Hence at LA level the 2012 event appears to initiate for the *whole* of Wigan around February 2012 and endures for 15 months while the 2008 event initiates around January 2007 and endures for around 16 months. In Wigan the 2008 event therefore appears to initiate earlier than the UK average (more in line with Scotland), and appears to result in more deaths than the 2012 event (difference between peak and trough around April 2009).

The somewhat intermediate behavior in the running 12 month sum from March 2010 to November 2011 arises from the 2009 swine flu epidemic which concluded around August 2010 and from a bad winter period around December 2010 and January 2011. Such spike-like events create a plateau (rather than a ramp) in a running 12 month total. There are alternative methods which are more suited to analyzing such spike-like events/outbreaks [1-2]. However, note that there is no 12 month long ramp to indicate a step-like feature; that these intermediate effects have cleared away before the onset of the 2008 event, and that the 2009 influenza epidemic failed to increase deaths to the level seen in the 2008 and 2012 events, i.e. we are dealing with recurring events of high public health significance. Similar intermediate behavior is seen in some of the following figures, and Fig. 1 therefore provides a useful context. In this respect Fig. 2 shows the running 12 month trend in admissions and deaths experienced at the local hospital during this time.

Both admissions and in-hospital deaths commence the step-like increase around February 2012, although the shape of the running sum chart is different to that for all-cause mortality Fig. 1 since in-hospital deaths only account for roughly 50% of

all deaths in the UK and will tend to be associated with acute medical conditions/ diag-noses. The main point from Fig. 2 is that medical admissions rise almost in parallel to admissions leading to in-hospital death, i.e. the hospital standardized mortality rate is largely unaffected except perhaps very early in the outbreak (February to April 2012) and later (December 2012 to March 2013) when deaths rise faster than admissions. Reasons for this disparity will be discussed later but appear to be related to a time cascade in diagnosis/conditions emanating out of the outbreak.

Having established that the increase in deaths and medical admissions are linked, it is useful to study the trends in admissions in the 40 MSOA which comprise the Wigan LA area. In the past it has been assumed that these step increases are due to hospital-based reductions in the threshold to admission, a proposal which cannot explain the simultaneous increase in deaths, nor the apparent related cycle in the gender ratio at birth. However if this were the case, then admissions would simultaneously rise in all small areas surrounding the hospital. A preliminary comparison of admissions in 2012/13 versus 2011/12 indicated that there was no evidence for a simultaneous jump in admissions, nor any relationship between distance from the hos-pital, i.e. residents living close to the hospital using the ED as an alternative to primary care, and that there were no length of stay specific issues, i.e. the increase was not due to a change in the use of the assessment unit.

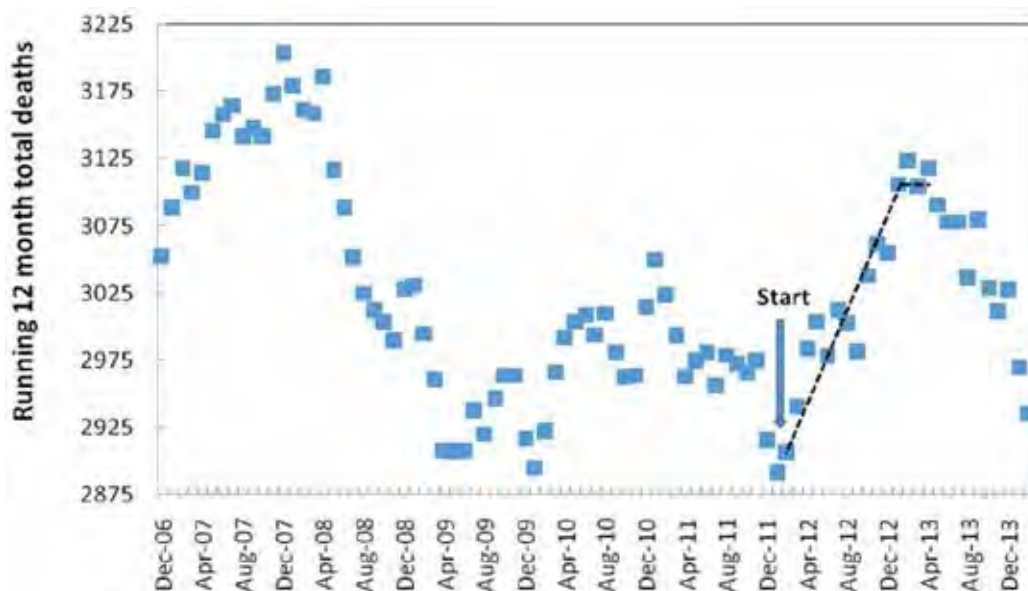


Fig. 1. Running 12 month sum of deaths (all-cause mortality) for residents of Wigan

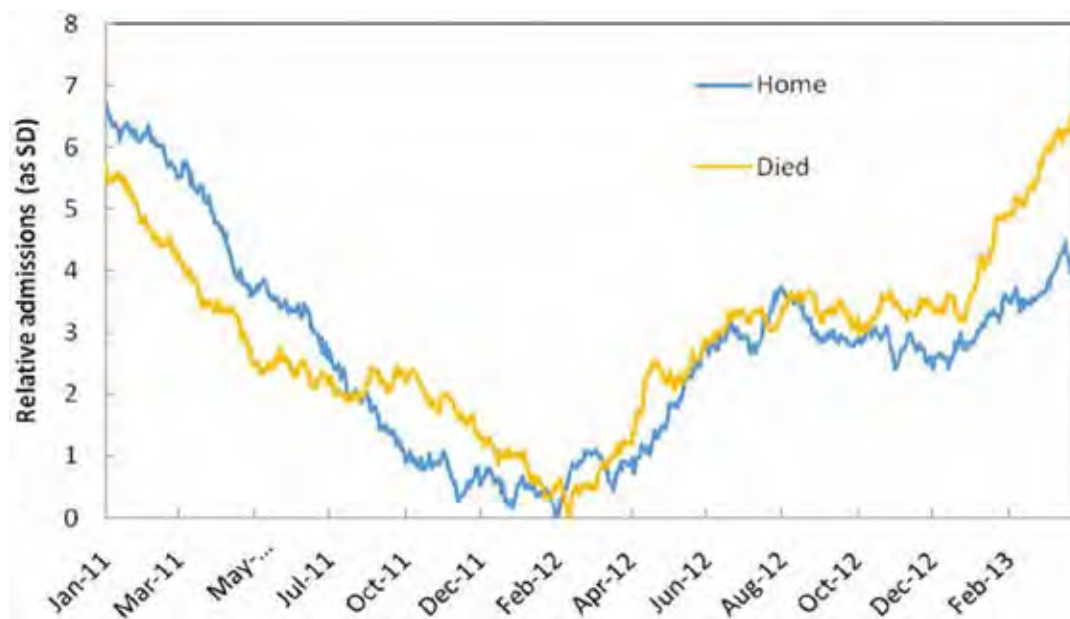


Fig. 2. Trend in the running 365 day total of admissions by destination at discharge

Admissions are a running 365 day total and are relative to the minimum over the period. The difference to the minimum point has been calculated as standard deviation's equivalent assuming Poisson statistics where, by definition, one standard deviation equals the square root of the average. On this occasion the average is taken to be the running 365 day minimum number of admissions or deaths which occurs around January 2012

The change in admissions ranged from -14% for MSOA Wigan 016 (5.1 km from the hospital) through to +16% in Wigan 002 (3.4 km from the hospital). The trend in each MSOA was then evaluated to determine the onset of a step-like increase in admissions and the percentage increase in admissions. Due to the way in which the step-like increase is determined an initiation date of, say Jan-12, implies that the step increase occurs toward the end of the month or even very early in the next month. These results are presented in Table 2 where it can be seen that there are a range of initiation dates commencing in January 2011 through to June 2012. This wide range in initiation dates is highly reminiscent of an infectious spread and it would be very difficult to explain why there should be a series of step-like increases other than from an infectious event. The apparent initiation date around (late) January 2012 for the whole of Wigan is driven by the cluster of 10 MSOA initiating at that time and a balancing effect between other MSOA initiating before and after this pivot point. Indeed the very fact that the hospital and the LA experienced a sudden (and otherwise

unexplained) 14% increase in medical admissions is an unprecedented event, especially when this increase then persists for 15 to 18 months.

Poisson statistics describes the random variation around the average for whole number events such as deaths or admissions. The 97.5% confidence interval (CI) shown in Table 1 has been calculated assuming Poisson randomness, i.e. to what extent could a calculated percentage change be influenced by chance. The 97.5% CI has been used to give a slightly higher level of confidence over the usual 95% CI used in many studies. As is expected, those MSOA with higher number of admissions have a much tighter CI and chance can be excluded as a major contributing factor.

Fig. 3 presents running total trends for a sample of MSOA. Points to note are the variable trends downward from the previous winter which will presumably be due to a range of winter respiratory viruses and knock-on bacterial infections. All MSOA exhibit the highly granular effects that would be expected of any infectious event. The size of this previous winter event in each MSOA does not appear to be linked to the size of the 2008 event, i.e. these events are independent. However from a separate study of deaths in English LAs, there is some evidence to suggest that the size of the 2008 and 2012 events may be linked in that LAs experiencing a large increase during the 2008 event show a lesser increase for the 2012 event and vice versa [6]. This is suggestive of some form of linkage perhaps via the death of sensitive individuals.

Up to the present, demographic change (population ageing), has been assumed to be the main driver of hospital admissions. However based on a twenty year career in health care forecasting, the link with demography regarding the medical group of specialties is exceedingly tenuous and other factors appear to play a far greater role. As has been demonstrated the above patterns cannot be explained by hospital threshold to admission, since the behavior depends on location within the hospital catchment rather than the hospital *per se*. Weather and other environmental phenomena can likewise be discounted since all MSOA in Wigan will experience roughly the same weather. Likewise changes in the composition of the population simply do not happen in the sudden step-wise manner demonstrated in this study. The fact that the trend lines for patients discharged home or died in Fig. 2 are roughly parallel is another indicator that whatever is happening is not due to a change in the threshold to admission. If the threshold to admission had reduced then less acutely ill

patients would be admitted and the line for discharged home in Fig. 2 would rise more rapidly than that for deaths.

**Table 2. Initiation date and percent increase in admissions
(with confidence interval)
to a variety of MSOA**

Location	Initiation	Increase	97.5% CI	Admissions in 2012/13
Wigan 012	Jan-11	14%	11%	587
Wigan 004	Feb-11	17%	16%	355
St Helens	Feb-11	49%	19%	289
Wigan 028/029	Feb-11	16%	28%	120
Other nearby LA	May-11	23%	20%	244
Wigan 019	Jul-11	27%	15%	396
Wigan 026	Jul-11	41%	15%	398
Wigan 030	Jul-11	33%	18%	292
Wigan 023	Aug-11	27%	28%	119
Not Known	Sep-11	20%	9%	718
Wigan 024	Sep-11	30%	13%	502
Wigan 036	Sep-11	10%	13%	517
Wigan 021	Sep-11	17%	15%	424
Wigan 033	Oct-11	35%	12%	539
Wigan 032	Oct-11	24%	14%	471
Wigan 039	Oct-11	21%	17%	331
Wigan 007	Nov-11	60%	17%	351
Wigan 040	Nov-11	66%	16%	366
Wigan 003	Dec-11	42%	13%	485
Wigan 006	Dec-11	48%	13%	476
Wigan 011	Dec-11	37%	13%	486
Wigan 005	Dec-11	14%	14%	462
Wigan 020	Dec-11	20%	14%	434
Wigan 037	Dec-11	39%	18%	313
West Lancashire	Jan-12	32%	10%	698
All Locations	Jan-12	14%	1%	18,928
Wigan 015	Jan-12	11%	8%	811
Wigan 010	Jan-12	27%	9%	739
Wigan 009	Jan-12	19%	8%	795
Wigan 014	Jan-12	37%	11%	612
Wigan 031	Jan-12	57%	12%	577
Wigan 008	Jan-12	15%	14%	450
Wigan 002	Jan-12	40%	13%	482
Wigan 038	Jan-12	13%	14%	443
Wigan 001	Jan-12	39%	20%	260
Wigan 013	Feb-12	15%	12%	561
Wigan 027	Mar-12	21%	13%	481

Table 2 Continued....

Wigan 017	Apr-12	42%	26%	148
Other England	Jun-12	11%	25%	162
Wigan 034	No Increase	n/a	17%	341
Wigan 035	No increase	n/a	15%	425
Wigan 018	No increase	n/a	12%	552
Wigan 016	No Increase	n/a	13%	519

Admissions in 2012/13 are given as an indication of the relative size of each MSOA. Smaller MSOA will have a larger confidence interval and vice versa. The confidence interval is calculated based on the number of admissions in the 12 months prior to the step-like change. The ‘Other nearby LA group excludes St Helens. Wigan 028 and 029, which are adjacent, were aggregated due to small numbers of admissions. The four MSOA at the bottom of the table labelled no increase had not shown any apparent increase within the study period. Initiation at a later date is possible



Fig. 3. Running 365 day total trends for medical admissions from a variety of MSOA

Note that infectious events prior to this outbreak have ceased to affect the running 12 month total before the start of 2102, and on this occasion allows a clear view of the outbreak, the onset of which occurs at the foot of the ramp seen in each MSOA. The somewhat jagged nature of the trends is due in part of Poisson randomness and the presence or absence of other events influencing admissions.

However on this occasion the contribution from other events are of far less consequence than the particular outbreak of interest

While the apparent increase in deaths occurred around February 2012 in England and Wales, this is known to be part of a wider spread with the increase in deaths commencing first in Scotland as early as August 2011 in the Fife Area Health Board (a large geographic area) [5] and this appears to concur with the earliest onset in Wigan at around January/February 2011 in a minority of MSOA as shown in Table 2. The apparent increase for the whole hospital catchment area does not occur until January 2012, and a similar dispersion in timing will also be occurring in the larger Fife location in Scotland. Such spread is consistent with the transmission of epidemics via the movement of travelers (air, rail, motorway) followed by the movement of individuals within social networks at local small area level [44-45]. Note that emergency medical admissions (at least for some diagnoses) are a leading indicator of these outbreaks while deaths can lag up to a month behind [5]. Earliest introduction for Scotland and hence parts of the wider UK is probably somewhere around the start of 2011. Note also the generally later date for admissions from the rest of England, Other England in Table 2, who will be people on business, holidays or visiting family which are mainly from more southern locations and is indicative of a degree of north to south spread but with isolated pockets of earlier initiation [6].

It is the particular nature of the spatial spread of this infectious agent which gives a clue as to why it has remained undetected for so long. National trends in mortality are usually conducted at LA level for the simple reason that the number of deaths becomes too small for meaningful analysis at sub-LA geographies. A comparison of Fig. 1 (LA-level) and Table 2 and Fig. 3 (both at sub-LA level) reveals how the impact upon death is greatly under-estimated at LA-level. What is seen at LA-level is a composite picture of complex small area spread within each LA. Early initiation in a number of small areas, i.e. the MSOA in the top half of Table 2 pull the base line for the whole LA upward, and the running total for the LA only shows a 7.5% apparent increase in deaths which is far lower than the 8% to 66% (range) increase in admissions seen at MSOA level. Admittedly the link between increased deaths and medical admissions may not be a direct relationship, however the very high granularity at small area, both in terms of initiation date and percentage change, shows how the full extent of each outbreak has been concealed. The extent of concealment will be even greater when using data aggregated at national level [6].

Something similar to an influenza or SARS outbreak can be discounted, since such outbreaks usually last between 8 to 12 weeks and therefore in a running 12 month

total chart do not create the 12 month long ramp indicative of the semi-permanent step-increase as demonstrated in this study. The fact that the step-increase endures for 12 months or more is illustrated by the line for Wigan 003 in Fig. 3 where the increase is subsequently maintained from November 2012 through to March 2013, i.e. it has endured at least 17 months. This rise followed by an eventual decline with timing differences between local areas is, what is known in disease epidemic terms, as a travelling wave with spatial hierarchies [46-47].

Analysis of the change in admissions for patients with different length of stay in hospital is suggestive of different phases of an infectious outbreak. First to die are those who are already extremely frail, deteriorate rapidly and die within 24 hours of admission to hospital (data not shown). One month later deaths rise in those with 6-14 day stays and are probably frail but not excessively so, develop exacerbation of existing conditions and die after a moderate period of acute care. That deaths after a 2-5 day stay increase in December is probably a reflection of a subset of the population who experience weakening after 8 to 9 months of exposure and acute illness with death is then triggered by the following winter. This concept was incorporated into the modelling work of Dushoff [48] where the acquisition of the first infection leads to immune weakening with higher likelihood of acquiring a second opportunistic infection after a particular time lag. Whatever the explanation, we are not dealing with a phenomenon that can be explained in simplistic terms of admission thresholds.

A further key observation is the fact that emergency medical admissions are trending downward in the period prior to the proposed infectious outbreak which is contrary to the generally perceived role of the ageing population as the principle driver of ever increasing medical admissions. Such an upward and downward cycle has been demonstrated to be a part of these outbreaks, and indeed is a fundamental part of a cycle of surplus and deficit seen within the NHS in the UK and in the private health insurance industry in the USA over many years [26,31, see review 49].

Having established infectious-like spread at small area level within the larger LA, it is of interest to see if age and diagnosis play a role in these events. Analysis of deaths in England & Wales associated with the 2012 event, has already demonstrated single-year-of-age saw-tooth patterns reminiscent of what is called ‘antigenic original sin, i.e. the consequences of the immune priming effects of repeat exposure to a series of different strains of the same agent [3]. In this respect Fig. 4 presents an

analysis of the effect of age upon the difference in admissions for twelve month periods before and after the event.

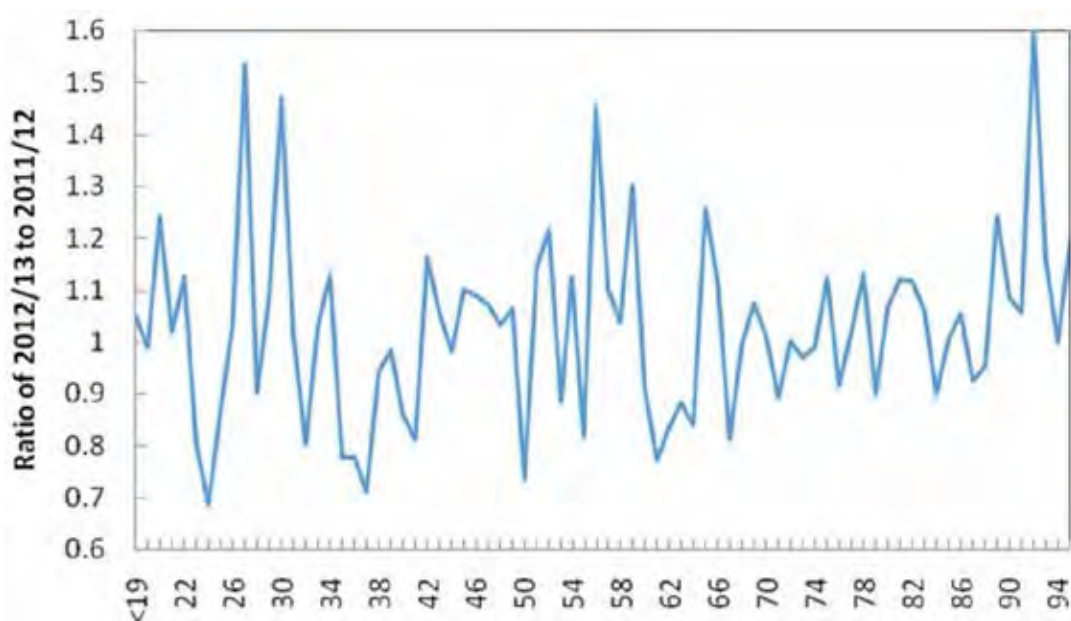


Fig. 4. Ratio of medical admissions in 2012/13 versus 2011/12 by single-year-of-age

Comparison of two twelve month periods is necessary to achieve statistically significant total admissions for each single year of age

As can be seen, the characteristic saw-tooth patterns are evident for medical admissions in Wigan as have been observed for deaths in England & Wales during the 2012 event [3] and for medical admissions in North East Essex during the 2008 event [43]. The implication is that the infectious events are due to different strains of the same agent, and that an immune response is involved. A further clue to immune involvement is given in Table 3 where a time cascade in diagnoses appears to be associated with the infectious-like event.

The possibility of a disease cascade following these outbreaks has already been suggested from a study of increased GP referrals associated with the 2008 outbreak and of outpatient attendance for specific dermatological conditions [32,34,36-37]. Another study also suggests that the 2012 event led to a shift in outpatient case-mix toward immune sensitive conditions [50] while admissions for the more aggressive forms of tuberculosis appear to lag some three years behind these outbreaks [51]. Based on a match with the diagnoses which increase during these outbreaks and are associated with increased death, the herpes virus cytomegalovirus (CMV) has been suggested as a possible causative agent [4,7-9,40-42]. This virus possesses a formidable array of immune evasive and modulating strategies which are implicated

in hospitalization and death [40-42,52-53]. In the USA a set of CMV-sensitive cancers appear to show a cycle of incidence induced by these outbreaks [54].

Table 3. Initiation date and percent increase in admissions for diagnoses associated with the infectious-like event

ICD	Description	Initiation	Increas
K92	Other diseases of digestive system	Jan-11	39%
834	Viral infection of unspecified site	Jan-11	115%
I21	Acute myocardial infarction	Jul-11	68%
K80	Cholelithiasis	Sep-11	22%
O23	Genitourinary infections in pregnancy	Sep-11	50%
K59	Other functional intestinal disorders	Nov-11	42%
T81	Complications of procedures NEC	Feb-12	24%
J18	Pneumonia organism unspecified	Mar-12	41%
L03	Cellulitis	Mar-12	23%
O26	Pregnancy related conditions	Apr-12	12%
J45	Asthma	Apr-12	14%
R06	Abnormalities of breathing	Apr-12	16%
S01	Open wound of head	Apr-12	14%
O68	Labor complicated by fetal stress	May-12	19%
R10	Abdominal and pelvic pain	Jun-12	30%

Analysis at the level of a single diagnosis is generally hampered by small numbers. Further studies on the possibility of disease cascades will need to cluster MSOA with the same initiation point to amplify the exact nature of the cascade

With respect to the issue of CMV, Table 3 is illuminating, since it encompasses a range of conditions known to be CMV sensitive [40-42,53]. The disease cascade is initiated with admissions for an unknown virus and/or non-specific gastrointestinal problems around January of 2011 and CMV-mediated vomiting, diarrhea, enteritis, colitis and inflammatory bowel disease is well recognized [53,55-57] as is the role of CMV in cardiovascular disease [58-59] and fatal myocarditis [60]. The cluster of respiratory conditions around March/April 2012 is also consistent with the lung as a major source of CMV infection [9,61] as is the role of CMV in allergic asthma [62]. The issues relating to pregnancy are likewise expected given a cycle in the gender ratio at birth which appears to accompany these outbreaks [39] and the well-recognized role of CMV in infection and complications during pregnancy [63-64]. The female genito-urinary tract is a well-known locus for CMV infection [64-65]. Such a progression of different diseases could be indicative of sites of direct infection and/or hastening of particular conditions via immune mediated effects against inflammation and auto-immunity [40-42]. An increase in admissions for ‘open wound of head (ICD S01) is indicative of a by-stander condition. This diagnosis is part of a wider cluster of upper

torso injuries and fractures (unpublished), suggestive of increased falls among the elderly due either to the clumsiness associated with a generally higher level of illness during an infectious outbreak, or to giddiness which would link to the neurological aspects of CMV infection [8,40-42,53]. The apparent time cascade in conditions presented here is similar to those seen in North East Essex after the previous 2008 outbreak [43]. While the direct link with CMV awaits confirming studies, it would appear that a disease cascade could be a characteristic feature of these outbreaks.

More detailed analysis of cause of death has not been conducted in this study simply because the numbers are too small for statistically meaningful conclusions. However, several recent studies have been conducted on the increase in deaths during 2012 for the whole of England and Wales. Notable increases in death for those suffering from neurodegenerative diseases (mainly dementia, Alzheimer's and Parkinson's) and for respiratory conditions [8-9] have been characterized. A paper investigating increased digestive system deaths is currently in preparation. In all cases the conditions/diagnoses associated with increased death appear to be sensitive to CMV-mediated exacerbation.

This study raises important questions regarding the hidden assumptions behind age standardization of admission rates and hospital mortality rates. Almost all age standardization used in health care employs five year age bands, and it is assumed that there is no hidden spatiotemporal spread of an agent capable of influencing medical admissions and deaths to the extent demonstrated here. The author has noted that particular hospitals in England were temporarily flagged as showing high death rates for pneumonia during the 2012 event. It has been suggested that the unique spatiotemporal pattern of spread for this outbreak arises from some form of respiratory phase which enables the very rapid local spread seen in the step-like increases [9,43]. Since pneumonia is one of the most common causes of in-hospital death, the highly granular nature of the spread across the UK combined with the single-year-of-age saw-tooth nature of the increase will invalidate the assumptions lying behind age standardization of hospital mortality and the seemingly sporadic flagging of hospitals will result, especially for pneumonia. Indeed it was such sporadic flagging of apparent excess mortality at this hospital, which has an otherwise exemplary record, along with the accompanying increase in medical bed occupancy which gave the impetus for this study. Given the link between marginal changes in death and medical admissions seen in Fig. 2 and demonstrated elsewhere [33,66],

this work also raises questions regarding the hidden assumptions contained in the NHS (England) funding formula [67].

As with any study there are several limitations worthy of comment. The use of a running 12 month sum is adequate for the detection of a step-like change in admissions and deaths, however, future studies will need to employ a range of alternative methods to further characterize the spread of this agent and strip out any simultaneous contribution from temperature changes and/or other infectious outbreaks which may overlap with the 12 to 18 month period in which admissions and deaths remain high. At the present CMV is not a notifiable infection and detailed studies will be required to determine, if and how, this agent is involved. If a new strain is implicated then both genetic and viral surface glycoprotein changes could be implicated, and this will necessitate appropriate methods over and above the usual measurement of anti-CMV IgG and IgM levels in blood.

It is probably apposite to ask why it has taken so long to recognize the existence of these infectious-like outbreaks. Unusual events such as these are not new. In 1969 the Western Infirmary in Glasgow reported a 27% increase in medical admissions in the six months August 1969 to January 1970 compared to the same period a year earlier [68]. A similar large increase also seems to have occurred in Scotland in late 1984 or early 1985 [69]. In the financial year 1993/94 emergency admissions across England had increased by 7 to 13% compared to 1992/93 [70-71]. At the Aintree hospital in Liverpool there was a 37% increase in medical admissions with an unexpected large increase in the 15 to 44 age group, while in nearby Manchester admissions to one mental health hospital increased by >30% [70]. Parallel increases in medical and mental health admissions were replicated across the whole of England, and medical admissions at the Royal Berkshire Hospital increased unexpectedly by 13% commencing in the middle of March 1993 [72] as did the number of occupied medical beds [73]. Events such as these are usually dismissed as having little relevance to present day changes and pressures in the NHS. Unfortunately in the absence of the knowledge of infectious-like spread, a host of studies into these events assumed that the ‘problem was due to a mix of social change and the inability of health service organizations to manage demand [74-77]. While such factors are important in the correct context, they do not lead to large step-like increases in emergency admission, however, such thinking had become so entrenched, that all rises in emergency admission are interpreted from that framework.

Hence the report by the Nuffield Trust suggested that increases in emergency admissions between 2004/05 and 2008/09 were largely due to a reduction in admission thresholds [10]. However, this (unproved) assumption contradicted the conclusions from two earlier studies. In the first, research in the USA had demonstrated that acute admission thresholds are maintained despite considerable fluctuation in demand [78], while in the second it was suggested that emergency medical admissions only ever rose in sudden spurts [19-20], as per the reports cited above [68-71]. Indeed the data presented in the Nuffield Trust report shows evidence for one such spurt of growth at the end of the study period although the significance of this seemed to have been overlooked, but was noted by others [79]. Given the evidence presented in this study, it would seem that preconceived notions may need to be re-evaluated.

These are initial studies conducted in an attempt to explain an otherwise poorly understood phenomena. The results need to be confirmed over wider geographies, and a continuous study over the period 2000 to present would be useful to identify both the 2003, 2008 and 2012 events. Given that it is far easier to demonstrate statistical significance in MSA with >300 admissions per annum, the aggregation of MSA with a common initiation date will assist in such studies although this criteria is more readily met in more densely populated urban areas. Such aggregation will further facilitate analysis of cause of death and possible time cascades in both admission and death. It has also been suggested that an outbreak of this agent earlier in the year acts to potentiate the effect of seasonal influenza during the following winter [17-18,43]. This preliminary study will hopefully stimulate further research.

4. CONCLUSION

Evidence has been presented to show unique spatial behavior within Wigan leading to increased emergency admissions at the time that deaths were observed to increase at a local and national level. Acute admission threshold changes can be categorically ruled out as the cause. The cause of the increase shows small area spread, and the characteristic saw-tooth pattern of change in admissions with age is suggestive of antigenic original sin. At the very least, emergency admissions are defying all known models relating to supposed demographic change. The unusual trends seen at larger geographies such as primary care organizations, acute hospitals, regions, state and whole country, are the composite of the small area spatiotemporal trends. Infectious spread of an unrecognized agent is a likely cause and requires

further urgent investigation. The ubiquitous herpes virus, cytomegalovirus, could be involved but this requires further study.

CONSENT AND ETHICAL APPROVAL

Patient consent was not required. Ethical approval was not required. No patient identifiable data was used in this study.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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**Arthur T. Johnson, Prakash Chapain, Darnell Slaughter,
Sally Gallena and Jafar Vossoughi,**
*Fischell Department of Bioengineering,
University of Maryland, College Park, USA,
Loyola University Maryland, Columbia, USA,
Engineering and Scientific Research Associates, Olney, USA*

Inspiratory and Expiratory Resistances During Exercise

1. INTRODUCTION

Paradoxical Vocal Fold Motion (PVFM), previously known as Vocal Cord Dysfunction (VCD), is a condition where the vocal folds adduct (close) during inspiration when they should abduct (open), thus decreasing airway patency. Although sporadic case reports have described symptoms suggestive of PVFM in the early literature, the disorder had not gained recognition until the past 15 years. Patients experience breathing difficulty, usually triggered by exercise, and seek medical amelioration [1-2]. They are commonly misdiagnosed as asthmatics, yet they do not respond to asthma therapy. Accurate and timely diagnoses are needed before satisfactory treatments can be developed, but there are presently no standardized methodologies for PVFM assessment [3].

At present, the standard assessment procedure uses a laryngoscope to visualize the vocal cords [4], although other pulmonary function tests have also been used [5-8]. Adduction of the vocal folds is mostly seen during inspiration, but it can continue into expiration as well [9]. However, adduction during expiration alone should not be considered to represent PVFM, because this can be caused by an adaptation to lower airway constriction [9].

Laryngoscopy has not been found to be well tolerated by exercising patients in our clinic. The optical fiber laryngoscope must be positioned deep in the oropharynx for proper visualization, and gagging is common. Although there may be other triggers for the condition, exercise frequently brings on exercise-induced PVFM (EIPVFM) for those susceptible. EIPVFM may subside soon after exercise ceases, so laryngoscopy must be performed within a very short time after exercise ceases. Whereas other well-trained

professionals may be able to administer laryngoscopic measurements during the exercise stage of testing, others, including ourselves, have found it to be nearly impossible to perform during exercise. Thus, we have searched for an alternative means to indicate when EIPVM is likely.

The Airflow Perturbation Device (APD) is an experimental instrument to measure respiratory resistance. It consists of a segmented wheel rotating in the breathing flow pathway [10]. Part of the wheel is open, and part screened, so that, as it rotates, it causes flow to periodically diminish and grow. Measured mouth pressure is also perturbed. The depth of each of these perturbations depends upon two things: resistance of the device and respiratory resistance of the patient. Measuring both mouth pressure and flow easily gives the resistance of the device, so patient respiratory resistance can be obtained noninvasively. Values obtained with the APD are comparable to those measured by impulse oscillometry (IOS), a form of forced oscillation (FO) [11].

The APD is relatively small and easy to use. It requires only about a minute of normal breathing to make its measurement. Of particular interest to PVFM diagnosis, it can separate respiratory resistance during inspiration from that during expiration. Thus, the APD could become a very important noninvasive tool to diagnose PVFM.

However, in order to ascertain the utility of the APD in EIPVFM diagnosis, APD measurements must be compared directly with laryngoscope findings. That produces a physical conflict, because the APD requires a seal with the mouth or nose to measure properly [12], yet the laryngoscope requires access to the throat. One possible means around this conundrum is to measure inspiratory and expiratory resistances immediately before exercise ceases with the APD, and immediately after exercise cessation with the laryngoscope. This procedure could be justified if the APD measured the same resistances immediately before and after exercise stopped. It is the purpose of this study to determine if resistances during inspiration and expiration change or remain the same on either side of the exercise transition. If there is no change, then laryngoscope and APD diagnoses could be directly compared. In addition, measurements of respiratory resistance before, during, and immediately after exercise could be of interest to pulmonologists interested in respiratory mechanics.

2. MATERIALS AND METHODS

Fifteen healthy non-asthmatic male and female subjects aged 18 years or older volunteered for respiratory resistance measurements at rest, during exercise, and at post-exercise rest. All subjects were students at the University of Maryland College Park and the protocol for human testing was approved by the University of Maryland Institutional Review Board. Before each test session, each subject completed a brief Medical History Questionnaire and a Physical Readiness Questionnaire for subject screening purposes. Only subjects presumed fit for exercise were allowed to participate in the test session. All subjects exercised by pedaling on a bicycle ergometer (Life Cycle 9500HR) and respiratory resistance measurements were taken in a seated position while breathing through the APD before, during, and after exercise. They breathed through the mouth only, a nose clip obstructing nasal flow.

The APD used in this study was calibrated for resistance values by comparison with a commercially-available Impulse Oscillometry (IOS) system (Care Fusion Master Screen; San Diego, CA) using a physical mechanical analog of the respiratory system [13]. Because the IOS cannot distinguish between resistances during inspiration from those during expiration, the APD was then calibrated with a three liter syringe (flow) and manometer (pressure) for resistances in both inspiration and expiration directions following the procedure in [10].

2.1 Initial Exercise Calibration

Each subject was tested on the bicycle ergometer prior to the data collection to determine the proper settings to elicit 70% of the subject's predicted maximum heart rate. Subjects were seated on the ergometer which measures the amount of work done and asked to pedal at a rate of 80-90 rpm. The heart rate was monitored using the sensors on the ergometer. The ergometer settings were adjusted until the heart rate reached a steady state value of about 70% of age-predicted maximum heart rate.

2.2 Experimental Session and Respiratory Resistance Measurements

Following the exercise calibration, subjects were allowed to rest for a long enough time for the heart rate to return to normal resting values. The subjects were then asked to sit on the ergometer and rest while respiratory resistance measurements were continuously acquired and recorded for a minute using the APD and the APD computer program. Subjects were then asked to begin pedaling the ergometer using the predetermined settings that would elicit a heart rate of 70% of age-predicted maximum heart rate. Each subject's heart rate was monitored using the sensors on the ergometer. Subjects exercised on the ergometer for five minutes while breathing through the APD. Pedaling ceased at five minutes, and the post-exercise rest period continued for two and a half additional minutes. The total time for data collection was eight and one half minutes.

2.3 Data Analysis

Individual APD readings exhibit a moderate amount of variability, and this variability can obscure recognition of real resistance changes. At least some of this variability appears to come from dynamic resistance changes of physiological origin in the respiratory system [13]. The APD, when used as a stand-alone device, averages individual readings for about one minute to produce a reasonably stable resistance reading. When used with a computer, however, individual APD resistance readings are accessible, and these were used for this study. To dampen variation of these readings, each reading was averaged over readings obtained for ten seconds, and labeled with the time corresponding to the average time of the ten second sample. Samples overlapped by nine seconds so that an averaged reading was available for each second from time beginning at 5 seconds to time ending at 510 seconds. The number of samples for each of these time intervals varied, because resistance was calculated once for each airflow perturbation, but wheel rotation speed can vary somewhat, especially during the intense breathing of exercise. APD pressure and flow data were collected at 200/sec, but times for perturbations usually slowed during inspiration, when the wheel was pulled closer to the APD body, and became faster during expiration.

Data for the entire cohort of participants were analyzed using the Student's t-test [14]. This test was performed for six conditions: difference of APD inspiratory resistance (R_i) immediately before and resistance immediately after exercise ceased (two readings total, denoted as local differences), and the same for expiratory resistances (R_e); differences of R_i averaged for 30 seconds immediately before and 30 seconds immediately after exercise ceased (60 readings total), and the same for R_e ; and differences of R_i averaged for 60 seconds immediately before and 60 seconds immediately after exercise ceased (120 readings total), and the same for R_e . These values of Student's t were compared to two-tailed (sign ignored) tabled values at the $p=0.05$ level with 14 degrees of freedom [14]. Data for the entire cohort of participants were also analyzed using a t-test with paired means using resistance differences before and after exercise ceased.

In order to investigate whether each individual subject's R_i and R_e immediately before exercise ceased could be considered to be the same as R_i and R_e immediately after, the same ratios as described above for the entire cohort were calculated for each subject. Ratios of sample averages divided by appropriate standard deviations were calculated for three inspiratory and three expiratory conditions: R_i and R_e immediately on each side of exercise cessation (local), R_i and R_e averaged for 30 seconds before and after, and R_i and R_e averaged 60 seconds before and after. Lacking a standard deviation for one local reading, the standard deviation for the entire eight and one-half minute test was used as the denominator for the local ratios, but standard deviations for the 30 second and 60 second ratios used standard deviations calculated for each of these time intervals. It was not appropriate to use a t-test on the local ratios because of the use of the entire sample standard deviation, but the 30 second and 60 second ratios were tested at the $p=0.05$ level with 58 and 118 degrees of freedom, respectively.

All calculations were performed using the Microsoft (Redman, WA) Excel program.

3. RESULTS AND DISCUSSION

In Table 1 are shown demographic characteristics for the 15 subjects. In general, they were all young, healthy adult college students.

Table 1. Subject demographics. Values given are means \pm standard deviation and ranges

Sex	11 male, 4 female
Age (years)	22.3 \pm 3.4 (19 to 30)
Height (cm, [in])	173 \pm 6.9 cm [68.1 \pm 2.7 in] 165 to 185 [65 to 73]
Body mass (kg, [lb])	68.2 \pm 8.9 kg [150.1 \pm 19.6 lb] 47.7 to 79.1 [105 to 174]

In Fig. 1 is shown a graph of R_i (black) and R_e (gray) averaged for all 15 subjects. Exercise began at 60 seconds and ceased at 360 seconds (each time given by the solid vertical line on the graph). Resistances stabilized while the subjects rested pre-exercise, and increased by about 15% when exercise started. There appears to be some anticipatory increase immediately before exercise began. The trend during exercise was slightly positive for inspiration and somewhat negative for expiration. From the graph, it appears that there is no easily discernible resistance difference in either R_i or R_e at the cessation of exercise, although there was a marked decrease in both at about 30 seconds after exercise ceased. This is about the time that the high breathing flow rates accompanying exercise diminish.

In Fig. 2 are shown data for subject 10. As can be easily noted, the variation of resistance values is more pronounced for this typical subject than it is for the averaged values appearing in Fig. 1. Most of the trends appearing in Fig. 1 are also present here: 1) there is a stable period before exercise began, 2) there was a general increase in resistances once exercising, 3) there were no discernible differences immediately upon exercise cessation, and 4) there was a general decrease about 30 seconds after exercise stopped. There was no appearance of an anticipatory increase before exercise and the general trend for both R_i and R_e during exercise was slightly downward.

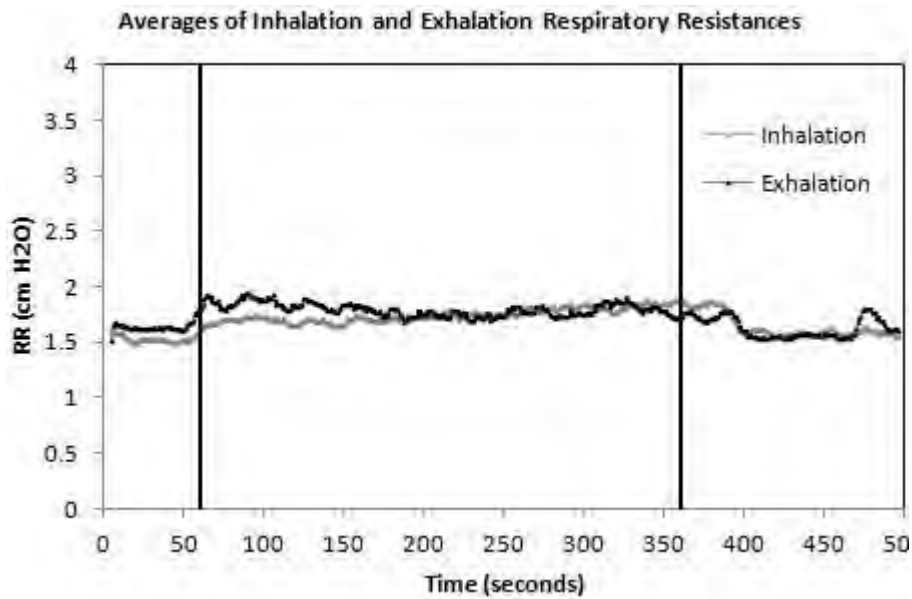


Fig. 1. Inspiratory (black) and expiratory (gray) resistance values averaged over all subject responses. Exercise began at 60 seconds and ended at 360 seconds

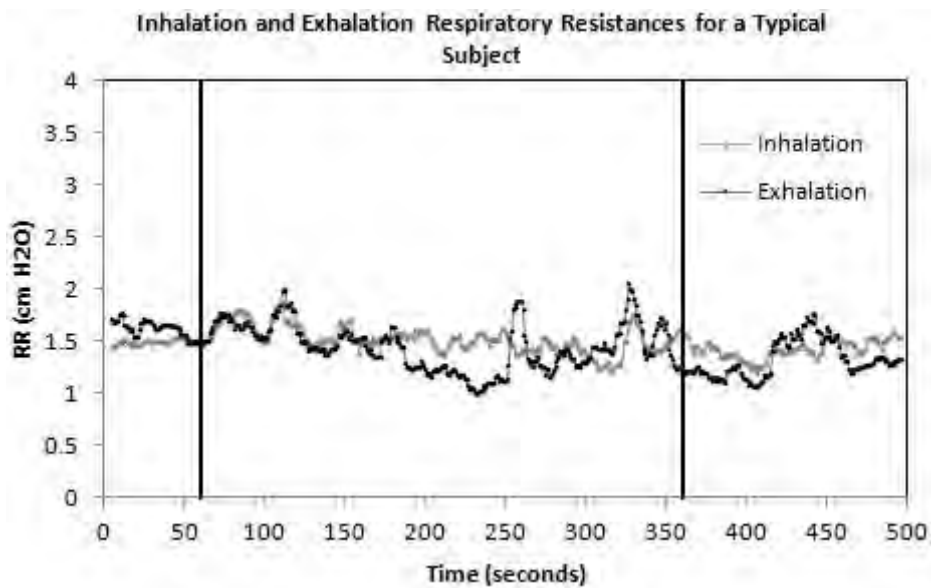


Fig. 2. Inspiratory and expiratory resistance values for subject 10, showing resistance values before, during, and after exercise

Fig. 3 shows the flow rates averaged over all subjects during the test. Steady state was only reached toward the end of the exercise period.

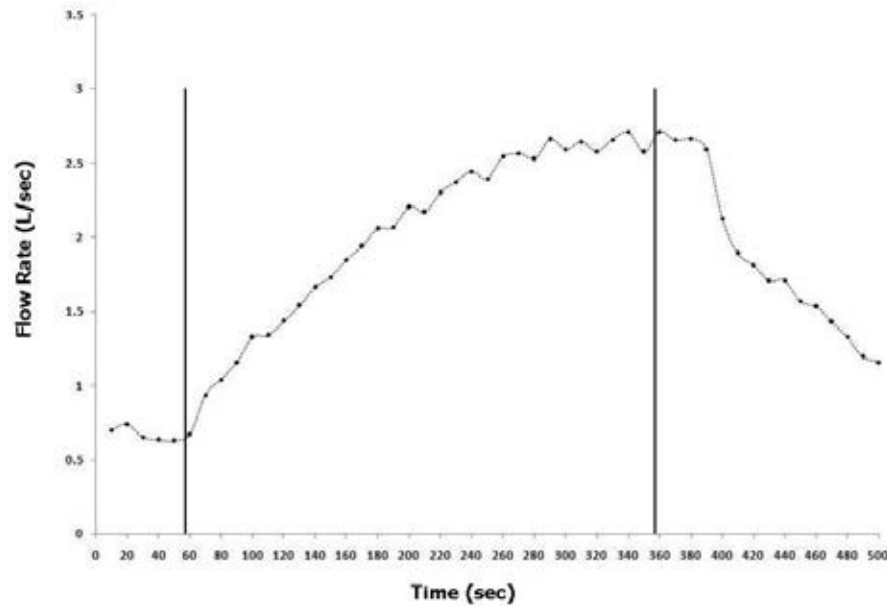


Fig. 3. Ten second averages of flow rates for all subjects

In Table 2 is a compilation of resistance differences to standard deviation ratios for each subject. No t-test run on individual subject data achieved statistical significance at the $P < .05$ level; thus individual subject resistances immediately before and after exercise ceased can be considered the same. Although no statistical test was applied to the local ratios, they are apparently of the same order of magnitude as are the statistically nonsignificant 30 second and 60 second ratios. All resistance differences are of the order of one standard deviation or less, so resistances before and after exercise ceases will likely be within a small percentage of each other for any given person. There was no apparent trend in these ratios as more samples were averaged. Therefore, averaging resistance readings over 30 or 60 seconds appears to offer no general increase in consistency before and after exercise ceases.

The calculated t values for the entire cohort of subjects for local, 30 second averaging, and 60 second averaging are given at the bottom of Table 2. Shown are the unpaired and paired t-test values. All but one of these values are highly nonsignificant, so it can be expected that resistances for the entire cohort of subjects would show no significant differences before and after exercise ceases. The only value to achieve statistical significance was the inhalation resistance averaged over 60 seconds. This is reasonable when looking at

Fig. 1, because average inhalation resistance appears to decrease significantly within 60 seconds after exercise ceases.

Based on the appearance of the data in Fig. 1, it appeared as if there was a significant shift in R_i and R_e as exercise began and also as exercise ceased. Paired observation statistical tests were performed for measurements on either side of the start of exercise and on either side of the end of exercise. For the first test, average R_i and R_e were formed for data appearing from 30 to 60 seconds and from 90 to 120 seconds. These values were compared as paired means with the intent to show whether the resistance increase at the beginning of exercise was statistically significant. The second test compared average R_i and R_e data from 330 to 360 seconds with corresponding data from 400 to 430 seconds. The intent of this test was to determine if the fall in resistances a short time after the end of exercise was statistically significant. Neither test achieved statistical significance. The variances of individual differences were very large, indicating that there was much variation from subject to subject. Some of this variance was caused by differences in response times; some subjects demonstrated the same trends, but the times for increases or decreases varied.

Table 2. Comparisons of sample differences to sample standard deviations at the end of exercise

Subject	Local ratio		30 sec ratio		60 sec ratio	
	Inh	Exh	Inh	Exh	Inh	Exh
1	1.035025	-0.20051	0.107149	-1.01713	0.898039	0.49386
2	0.00697	0.319235	-0.92187	-0.85342	0.537749	-0.89234
3	0.371235	-0.35245	0.965354	1.049834	0.898123	1.032399
4	-0.10916	-0.20051	-0.5316	-1.01713	0.414964	0.49386
5	0.153987	0.248836	-1.229165	-0.21692	0.308876	0.627609
6	-0.087439	0.542369	0.669109	1.298823	1.17987	1.397005
7	0.015388	-0.03211	0.393402	0.180411	1.119952	0.769254
8	0.009647	-0.08688	0.975555	-0.68473	1.234626	0.469874
9	-0.16222	-0.00401	1.688098	1.514769	1.074799	1.548484
10	0.198229	0.221179	0.877892	1.502858	0.428099	1.404698
11	-0.11961	-1.05996	0.735468	0.58048	0.633567	0.683837
12	-0.57798	-0.200511	-1.48109	-1.01713	0.370474	0.49386
13	0.132934	0.037933	-0.2054	0.536175	0.502232	1.196191
14	-0.22245	-0.51396	-0.33075	0.184346	0.811614	1.099917
15	-0.09744	-0.13101	0.002292	-0.04607	0.475427	0.841602
Averages						
(t value)	-0.07143	-0.05927	0.675099	1.073905	2.306372	1.375362
(paired t value)	-0.07143	-0.05927	0.071429	0.071429	0.159487	0.071429

Whenever statistical significance is obscured by large sample variances, nonparametric tests can sometimes be used instead. One such test is the Wilcoxon Signed Rank Test [14]. Using this test, R_i and R_e differences, both at the start of exercise and after exercise, were found to be statistically significant at the $P < .01$ level.

This study was undertaken mainly to provide evidence to support a procedure that would make the detection and substantiation of EIPVFM as measured with laryngoscope and APD able to be compared. Both require measurements to be taken at the mouth, and each can interfere with the other. If not impossible, at least it would be extremely difficult to make both measurements simultaneously. What these results have shown is that APD measurements taken immediately before exercise stops can be compared to laryngoscopic measurements immediately after. Resistance differences for the entire population of subjects tested in this study differ by so little as to be statistically highly nonsignificant. The same is true for individual subjects. Any differences that appear are going to be small and not going to influence conclusions about laryngoscopy and APD comparisons. This applies to both inspiratory and expiratory resistances.

However, although R_i and R_e do not differ significantly immediately at the cessation of exercise, resistances measured a half minute or more after exercise either begins or ends do change significantly from their former levels. Thus, resistances increase after exercise begins and decrease after exercise ceases, as shown in Fig. 1.

For many years it was believed that airway resistance did not change during exercise because any tendency to decrease would be offset by the effect of increased breathing flow rate [15]. However, de Bisschop et al. [16] measured average respiratory resistance during exercise with an IOS system and found that resistance immediately upon the cessation of exercise was higher than at rest, but lower than what would have been expected with the higher breathing flow rate. They attributed this to reflex bronchodilation during exercise. The transient resistance they measured had disappeared by the time a second resistance measurement was made 90 seconds after exercise stopped. Results from the present study show that both inhalation and exhalation resistances

decrease from their high exercise values within 45 seconds of exercise cessation.

Silverman et al. [17] used an APD to measure both inhalation and exhalation resistances at the end of exercise for subjects on a treadmill. They selected resistance values for which the breathing flow rates were within a close range to resting flow rates. Thus accounting for the effects of flow rate on resistances, they demonstrated that both inhalation resistance and exhalation resistance decreased from resting values immediately following exercise. Inhalation resistance changed more than exhalation resistance. Resistances quickly recovered to their pre-exercise values. There were no statistically significant differences between pre- and post-exercise values by 50 seconds after exercise. They were not able to measure resistances changes at the start of exercise.

The results in [17] are consistent with those of [16] and those of the present study. Resistances in Figs. 1 and 2 were not corrected for flow rate differences. These are the resistances that would be measured without selection based on flow rate, as given in Fig. 3. de Bisschop et al. [16] implied that, if they could have corrected for increased exercise hyperpnea, the average respiratory resistances they would have measured would have been lower than pre-exercise values. The conclusion that can be reached is that resistance increases during exercise and decreases after, but this increase is the result of two opposing trends: the augmentation due to flow rate and the diminished resistance due to (probably) bronchodilation.

Normally, one would expect exhalation resistance to be slightly higher than inhalation resistance, at least at rest. This is because of the slight narrowing of the airways during exhalation compared to inhalation. Inhalation resistance is clearly shown to be somewhat larger than exhalation resistance in Figs. 1 and 2. This difference is not maintained throughout the exercise period.

To be clear about this study and its results, this study does not present a new replacement method for the diagnosis of exercise-induced paradoxical vocal fold motion (EIPVFM). If such a method comes about, it must be the result of careful and deliberate study. The APD could possibly become an important part of a new diagnostic method, but only after many careful steps.

This is only the first of those steps. There is a problem that we have seen in applying laryngoscopic imaging to exercising patients, and an alternative may be more appropriate if it can be established that its indications are valid. The APD provides a pulmonary function measurement capability that has not previously been available to practitioners: the ability to easily measure respiratory resistance directly and separated into inhalation and exhalation phases. Spirometry does not do this and neither does forced oscillation. But, if it is to be used during exercise, then the APD must be validated for such use. If APD results are to be compared to those from the laryngoscope, then we must be sure that respiratory resistances do not change during the transition time from one measurement to the other. The results of this study confirm that respiratory resistances in normal subjects do not change immediately after exercise ceases. That is what this study has shown, and that is all this study has shown. Anything further must be tested in additional studies.

Clinical Significance: Measurements of respiratory resistance and vocal cord images during or immediately following exercise, which both require exclusive access to the mouth, cannot be made simultaneously, but this study demonstrates that both measurements can be made sequentially without loss of accuracy, as long as the two measurements are made within 30 seconds before and after the cessation of exercise . Measurements made with the APD, or other respiratory resistance measuring device, just before exercise ceases can be directly compared with laryngoscope images made soon after exercise cessation.

4. CONCLUSION

Both inspiratory and expiratory resistances increase at the start of exercise and decrease soon after exercise ceases. There is no statistically significant difference in either of these two resistance measurements immediately before and after exercise cessation.

CONSENT

All authors declare that ‘written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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COMPETING INTERESTS

The authors have no competing interests.

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S. Shambhu and C. M. Cheshire,
*Department of General Medicine, Manchester Royal Infirmary,
Manchester, United Kingdom, England*

Oesophageal Carcinoma: An Atypical Presentation – A Case Report

1. INTRODUCTION

Oesophageal carcinoma typically presents with dysphagia and weight loss [1], but naturally there are atypical cases also. Oesophageal carcinoma is the 9th commonest cancer worldwide with an annual incidence of 7300 cases in the United Kingdom [2] with smoking and alcohol each increasing the risk of developing the cancer fivefold. In terms of presentation the elasticity of the oesophagus means that around two-thirds of the lumen needs to be obstructed to produce dysphagia. Untreated, the tumour tends to be locally invasive and can eventually metastasise to the liver, lungs, bone and nervous system causing breathlessness in rare cases as a manifestation of a malignant pleural effusion. Treatment options include surgery and radiotherapy but the overall 5-year survival rates are approximately 20-25% for all stages [3].

Published epidemiological data regarding the presentation of oesophageal carcinoma is very scarce with no concrete figures for those that may present with respiratory signs. The authors here present a case of oesophageal carcinoma that presented with acute respiratory distress.

2. CASE

A 62-year-old Caucasian male presented to the Emergency Department after an episode of sudden collapse earlier that day. Presenting signs included extreme dyspnoea and wheeze of sudden onset with no apparent trigger. On further enquiry he had no respiratory history and his only risk factor was the fact he was a chronic smoker. A recent weight loss of 6 kg over the previous 8 weeks was also noted. He was afebrile but tachycardic with a respiratory rate of 24. On examination patient was in severe respiratory distress using all his

accessory muscles and unable to speak in full sentences with chest auscultation revealing poor bilateral air entry but no crepitations. The clinical diagnosis at this stage was acute exacerbation of a first presentation of chronic obstructive pulmonary disease. Arterial blood gases on high flow oxygen (60%) revealed an acidosis (pH 7.29) with a degree of CO₂ retention (7.91 kPa). However these improved on 24% oxygen to pH 7.40 and pCO₂ of 5.40 kPa respectively. Haemoglobin was 16.0 g/dL and white cell count was 12.6 x 10⁹ /L. Renal and liver function tests were normal. A chest radiograph revealed hyper inflated lung fields but nothing else of note.

The patient was initially managed with a course of intravenous antibiotics, steroids and regular nebulisers and his condition improved. The sudden sporadic nature of his symptoms together with the recent weight loss led one to the possibility of intermittent obstruction caused by a tumour in a main bronchus. A respiratory opinion was sought and subsequent bronchoscopy proved normal which now pointed to a possible diagnosis of acute laryngeal spasm. A CT (computed tomography) scan booked as next line investigation revealed a 3.6 x 3.2 cm mass with a density of 58 (soft tissue) causing partial mid-oesophageal obstructions with an air fluid level at the level of the carina (Fig. 1). No mediastinal lymphadenopathy was seen and no surrounding fat stranding was seen at this level either. The lungs and visualised bones were unaffected and there was no evidence of metastasis or infiltration to any surrounding thoracic or abdominal structures. A subsequent barium swallow revealed there to be a 5 cm irregular tight stricture in the subcarinal oesophagus with a positive apple core sign and pooling of contrast with food residue being noted also. An urgent gastroscopy showed a tight stricture beginning at 30 cm from the incisors through which the scope was unable to pass without revealing any other possible features to explain these atypical presenting symptoms. Six biopsies were taken from the site all measuring 0.2-0.4 cm each. The biopsies comprised of oesophageal mucosa and clot that was confirmed histopathologically to be squamous cell carcinoma grade G2. The tumour cells were confined to the superficial layer of the oesophagus and determined to be stage IB. Following informed discussion of the potential treatment options with the patient he opted for a course of radiotherapy.

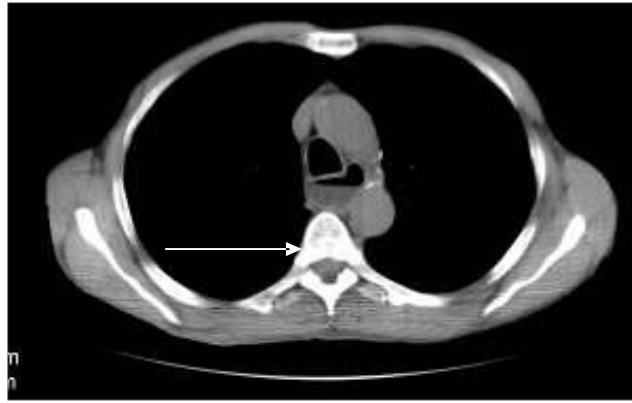


Fig. 1. CT Thorax indicating oesophageal mass (arrow)

3. DISCUSSION

The sudden sporadic onset of respiratory symptoms in this case with no prior respiratory history perplexed many of the physicians involved. Galandiuk et al. [4] have reported that dysphagia (80-90% of patients); vomiting (50%) and pain (45%) are the commonest presenting symptoms of oesophageal carcinoma but the reported patient presented with none of these. Indeed here the normal bronchoscopy findings pointed to a diagnosis of acute laryngeal spasm as the cause of the patients' respiratory symptoms in keeping with previously reported cases [5]. Literature searches have revealed cases of airway obstruction [6] due to oesophageal carcinoma but they have all been caused by oesophagotracheal fistulas which this patient did not have [7].

In this case the patient presented with bizarre sudden respiratory distress sufficient to cause collapse. A respiratory cause was sought but all tests including bronchoscopy proved normal. The eventual diagnosis of oesophageal carcinoma is highly unusual in that the patient did not present with the typical symptoms. In retrospect further discussions with the patient revealed that he had avoided certain foods that had caused him to wheeze but he was never investigated for this. The authors surmise that the sudden respiratory symptoms were due to acute laryngeal spasm secondary to overflow caused by the oesophageal tumour and this gave the picture of hypercapnoeic respiratory failure present on the initial results. The acute laryngeal spasm is highly likely to be linked in this way to the oesophageal carcinoma diagnosed by subsequent CT scan.

4. CONCLUSION

Doctors may encounter several patients with acute respiratory symptoms but subsequent investigations focused on finding a respiratory cause fail to reveal any pathology. In such cases repeated evaluations of the patient must include alternative pathologies in anatomical areas closely related to the respiratory system. Physicians should be cautious to label any patient with acute dyspnoea as having a respiratory cause without any definitive respiratory past medical history.

CONSENT

All authors declare that written informed consent was obtained from the patient for publication of this case report and accompanying images.

ETHICAL APPROVAL

Not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Abdigalieva Tolkyn, Kazakh National Agrarian University,

Ph.D. Student, the Faculty of Veterinary,

Sarsembayeva Nurzhan, Kazakh National Agrarian University,

Professor, Doctor of Veterinary Sciences, the Faculty of Veterinary,

Ussenbayev Altay, Kazakh National Agrarian University,

Candidate of Veterinary Sciences, the Faculty of Veterinary

Research the growth performance of broiler chickens when used of feed additives based on vermiculite

Abstract: There were investigated the effects of basal diets supplemented with a feed additives based on Kazakhstan field's vermiculite on growth performance, morphology of intestinal organs of one-day old broiler chickens for 42 days. In the experiment 100 chickens were divided into 5 groups with 20 chickens each. Four experimental groups were fed with supplementing of 3%, 5% vermiculite and 3%, 5% vermiculite with fish meal and control group - the basal diet. It was established that supplementation of vermiculite could increase significantly body weight gain, feed intake and feed conversion ratio ($p < 0.05$) but higher level of these indices were obtained when the 5% vermiculite with fish meal was fed. All dosages of the mineral didn't morphologically change of internal organs.

Keywords: Broiler, Vermiculite, Fish Meal, Growth Performance.

Introduction. The natural silicate minerals are found to be effective as non-toxic, cheap, ecologically advantageous and affordable materials based on their high-sorption capacity and ion exchanges properties. So they are widely used in many fields of industry, agriculture, environment protection, sanitation, veterinary medicine, and animal nutrition [1].

One of the most promising natural resources, suitable for use in agriculture is vermiculite [2].

Vermiculite is a silicate mineral that is obtained from volcanic magma resources. High heat treatment creates an expansion in volume, an increase in permeability and a decrease in weight. The obtained product is very light and sterile. With thermal insulated and fire-resistant features, vermiculite is used as the land regulator in agri-

culture. The chemical composition of vermiculite is: SiO₂ 38-46%, Al₂O₃ 10-17%, MgO 16-35%, CaO 1-5%, K₂O 1-6%, Fe₂O₃ 6-13%, TiO₂ 1-3% and H₂O 8-16%. Material has a relatively high water-holding capacity (200-325% of weight and 20-50% by volume) and thermal conductivity (0.065-0.062 watt) and it has a gold colored, accordion shaped physical appearance. Although it has the same function as perlite, vermiculite has better thermal properties and lesser dust ratio than perlite [3].

The basic deposits of vermiculite are concentrated in the USA, the South African republic, Russia and some other countries. There are also deposits of vermiculite in the Republic of Kazakhstan. Requirements of Kazakhstan for vermiculite can be estimated in ten thousand tons annually, thanks to wide area of possible use. The forecast of export possibilities regarding the vermiculite is also favorable for Kazakhstan [4].

It is concluded that vermiculite has been widely added to feed for broilers to improve growth performance and health, to reduce toxicant residues and also production costs, based on the description above [5, 6]. But the information about the effects of dietary combination of Kazakhstan deposits' vermiculite on growth performance, digestibility of feed nutrients is limited.

Therefore, the objectives was to assess the effect dosages of feed additives based on vermiculite from Kazakhstan deposit's plant on growth performance of broilers and the quality of the meat.

The feature of vermiculite from "Kulantau" deposit is does not contain impurities asbestos (certificate №127 from 04.06.2009, Ltd. "PIC Geoanalitika"), which is characteristic of some deposits of vermiculite [7], and does not contain carcinogenic or harmful to health human and animal impurities. The presence of macro and microelements in vermiculite composition in a sufficiently large amount distinguishes it from other natural minerals [8].

Materials and methods. There was performed an experiment at the poultry farm LLP "Saru Bulak" on broilers breed "Arbor Acres". For beginning the experiment were used broilers from day old. The chickens were grown in two-level battery cages. Birds had a free access to diets and water. All birds were fed with a standard industrial diet of the LLP "Saru bulak". All feed mixtures contained the same components; the only difference was that the mixtures designed for the experimental groups were supplemented with vermiculite. In the experiment chicks divided into five groups for feeding fodder with a different content of the vermiculite (control without vermicu-

lite, with 3%, 5% vermiculite, 3% and 5% vermiculite with fish meal), each consisting of 20 chickens respectively (Table. 1). The vermiculite used in this study was provided by LLP «Kulantau» (Kazakhstan), brand M-150, fraction was 0.5-3.0 mm. The experiment was prolonged for 42 days.

Also, in the laboratory "Biotechnology, quality and food safety" have been carried out of studies on the effect of vermiculite on the safety of fish meal. The result of this experience was best option turned out to be the ratio of 30:70, where 30% - vermiculite and 70% - fish meal. This explains adsorption quality of vermiculite. It can absorb liquids up to 200% of its own weight. Mineral do not decay and rotting under the influence of microorganisms, is not a favorable environment for insects and rodents. Further, the additive of this option was used as a feed additive for broilers.

Table 1. Scheme of the experiment

Group №	Conditions	Number of broilers
A (Control)	100% BD	20
B (1 experimental)	97% BD + 3% V	20
C (2 experimental)	95% BD + 5% V	20
D (3 experimental)	97% BD + 3% (V+FM)	20
E (4 experimental)	95% BD + 5% (V+FM)	20
Note: Abbreviation: BD - The basic diet, V-vermiculite, FM – fish meal.		

At 1, 14, 28 and 42 d of age, birds were weighed. The statistical analyses were performed using ANOVA. A significance level of $p < 0.05$ was used during analysis.

Results. The experiment indicated that in the experimental group 4 fed with vermiculite food additives an average weight gain was for 10% higher than the control group (table 1).

In an experimental group E, where chickens fed with the vermiculite food additives plus fish meal the weight gain was more on average 19% than in the control group.

Addition of vermiculite and vermiculite with fish meal to broiler's feed had a significant impact on absolute average daily gain (ADG) and relative growth (GR) as it was shown at table 2.

Table 2. Effects of feed additives on growth performance of broiler chickens

Groups	Period (d)			
	Initial weight (g/bird)	*BWG (g/bird)		
	1	14	28	42
A	47.4±0.22	786.73±25.62	1502.10±46.26	2007.30±65.18
B	47.2±0.18	793.71±31.04	1531.07±59.21*	2158.00±14.02*
C	47.6±0.18	796.05±24.36	1529.16±16.45	2204.21±20.88*
D	47.3±0.18	805.35±15.54*	1638.47±24.26*	2403.31±20.88*
E	47.4±0.21	812.21±14.31*	1644.30±57.01*	2506.50±53.84*

*BWG- body weight gain

Table 3. Body weight changes of the broilers under the influence of the feed additive based on vermiculite (grams)

Group №	Average weight, g		Growth		
	Initial	Final	Absolute growth, g	Average daily gain, g	Growth rate
A	47.4±0.22	2007.30±65.18	1959.9	46.66	42.35
B	47.2±0.18	2158.02±14.02	2110.82	50.25	45.72
C	47.6±0.18	2204.21±20.88	2156.61	51.35	46.31
D	47.3±0.18	2403.31±20.88	2356.01	56.09	50.81
E	47.4±0.21	2506.50±53.84	2459.1	58.55	52.88

The table 2 shows that the difference in weight of the broilers at the beginning of experience in all groups was not more than 0.4 g, after 42 days average daily gain of the C group was 51.35; D- 56.09, E-58.55 while the control 46.66. The noticeable definite increase in the weight of broilers in the weight of the D and E test group in comparison with the control group (P <0.05). The growth rate in the control group was 42.35; in the D group – 50.81; in the E group -52.88, that higher than in the control at 10.53.

Discussion. Introduction of feed additives is important for development of industrial poultry farming of Kazakhstan from available local mineral raw materials. This sector of the market is filled with spontaneous deliveries of low-quality mineral feed additives of import production. Now broad introduction to the preparation of an-

imal feed from the natural raw materials in Kazakhstan is stopping for lack of veterinary and sanitary assessment of poultry products after of them using [9, 10].

Our experiment with using of vermiculite with fish meal as feed additives had shown that broilers productivity performance was significantly higher than in control group and in the group treated by adding only vermiculite. There was established that the investigated functional additive could be used as digestion stimulant and growth promoter for favorable influence of them on feed efficiency of broiler chickens. Birds fed diet with feed additive had a greater gain. The comparative weights and the efficiency of the internal edible organs of birds obtaining a ration containing vermiculite showed a higher mean as compared with the control treatment ($p < 0.05$).

Next will be investigated the effect of vermiculite on the chemical composition of meat and on hematological and biochemical indicators of broiler blood.

Conclusion. In conclusion these results suggested, that exfoliated vermiculite of the Kazakhstan deposits and fish meal may be able to use as substitute for feed additives because the growth performance in chicks fed diet with vermiculite and fish meal was very productive with regard to increasing the total weight of broilers relative to the control group.

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*Ryzhkovskiy Volodymyr,
Borys Grinchenko Kyiv University,
Docent, Ph.D. in Medicine, Humanitarian Institute*

The expedience of physical therapy on the myocardial contractility of left ventricular in the planned surgical treatment of calculous cholecystitis

*Рижковський Володимир,
Київський університет імені Бориса Грінченка,
доцент, кандидат медичних наук, гуманітарний інститут*

Доцільність фізичної терапії на скоротливу здатність міокарда лівого шлуночка при плановому хірургічному лікуванні калькульозного холецистити

Постановка наукової проблеми та її значення. Захворюваність на жовчнокам'яну хворобу постійно зростає, а калькульозний холецистит з його ускладненнями є однією з головних проблем сучасної хірургічної гастроентерології, і в ряді країн холецистектомія стала виконуватись частіше, ніж апендектомія. Все це визначає актуальність і соціальну значущість проблеми [1].

Аналіз досліджень цієї проблеми. Не дивлячись на всезростаючу кількість різних методів хірургічного лікування захворювань жовчовивідної системи, кінцеві результати щодо відновлення функціонального статусу організму, здоров'я і якості життя не завжди досягають поставленої мети. Це, можливо, зумовлено неврахуванням причин, механізму і характеру захворювання, наявності ускладнень і супровідних захворювань, методу хірургічного лікування, а, можливо, й недооцінкою або неадекватним застосуванням засобів і методів фізичної реабілітації (2;3;4).

Мета і завдання статті. Аналізуючи доступні літературні джерела, можна припустити, що вплив фізичної реабілітації на функціональний стан міокарда

лівого шлуночка у хворих, які перенесли планову холецистектомію, вивчений недостатньо (принаймні на теренах країн колишнього Радянського Союзу). А тому метою роботи стало дослідження впливу фізичної терапії на скоротливу здатність міокарда лівого шлуночка у хворих з жовчнокам'яною хворобою (хронічним калькульозним холециститом), які перенесли холецистектомію.

Для вирішення поставленої мети були поставлені наступні завдання: 1) вивчити скоротливу здатність міокарда у хворих на хронічний калькульозний холецистит; 2) дослідити скоротливу здатність міокарда у наступних групах хворих: а) хворі із застосуванням фізичної терапії у до- і післяопераційному періодах (основна група); б) хворі без застосуванням фізичної терапії у комплексному лікуванні калькульозного холециститу (контрольна група); 3) провести порівняльний аналіз отриманих показників між відповідними групами хворих.

Виклад основного матеріалу й обґрунтування отриманих результатів дослідження. Обстежено 48 хворих із жовчнокам'яною хворобою, які піддалися плановому хірургічному втручанню (холецистектомії). У передопераційному періоді виконували фізікальні, лабораторні, інструментально-апаратні методи обстеження. З інструментально-апаратних методів обстеження застосовували ультрасонографію (ультразвукові апарати фірм “Toshiba”, “Siemens”), фіброгастроуденоскопію (ендоскопи фірми “Olympus”), стандартну електрокардіографію і Холтерівський моніторинг (за допомогою комплексу добового кардіомоніторингу “Ритм”), ехографію (ультразвукові апарати фірм “Siemens”, “Aloka”).

При ехографії використовувався трансторакальний доступ. Проводився розрахунок основних показників кардіогемодинаміки за формулами Teicholz та ін., оцінювалась скоротлива здатність міокарду лівого шлуночка [5, с. 285-286]. Визначались кінцевий діастолічний та кінцевий систолічний об'єми лівого шлуночка (мл), ударний об'єм (УО) (мл), фракція викиду (ФВ) (%), ΔS – ступень вкорочення передньо-заднього розміру лівого шлуночка в систолу (%).

Серед обстежених хворих у 24 (50,0%) встановили супровідну патологію інших внутрішніх органів і систем. Серцево-судинну патологію виявили у 20 хворих: холецисто-кардіальний синдром, гіпертонічну хворобу I-II ст., ішемічну хворобу серця (стабільну стенокардію напруги I-II функціонального класу), недостатність кровообігу I-II ст., варикозну хворобу вен нижніх кінцівок. Хронічну виразкову хворобу шлунка і 12-палої кишки в стадії ремісії виявили у 3 хворих; хроні-

чні неспецифічні захворювання легень із дихальною недостатністю I-II ст. (2 хворих).

Перед проведенням хірургічного лікування всі хворі були розподілені на дві рівноцінні клінічні групи: основна (n=24), контрольна (n=24). За статтю, віком, клінічною картиною, тривалістю жовчнокам'яної хвороби, методом хірургічного втручання основна та контрольна група істотно не відрізнялися. Хворі основної та контрольної груп отримували базову терапію у післяопераційному періоді. Однак хворим основної групи призначили індивідуальний підхід застосування фізичної терапії у до- і післяопераційному періодах, при цьому лікувальна фізкультура склала постійну і провідну ланку кінезітерапії. Основним засобом дії були відповідні фізичні вправи, застосування яких в більшій мірі визначало кінцевий результат відновного лікування [6].

Для виявлення компенсаторно-адаптаційної здатності серцево-судинної системи хворих до фізичної терапії застосовувалась одномоментна функціональна проба з дозованим фізичним навантаженням Мартине-Кушелєвського, яка проста і легкодоступна у своїй методиці [7;8].

Результати досліджень піддалися математичній обробці за допомогою комп'ютерної програми Microsoft Excel. Визначали такі показники: n – число спостережень; M – середнє значення; σ – середньо-квадратичне відхилення; m – середньо-арифметична похибка; t – коефіцієнт Ст'юдента; P – коефіцієнт достовірності. Розходження розцінювали як достовірне, починаючи зі значення "P" менше 0,05 ($P < 0,05$), тобто коли ймовірність розходження була більше ніж 95,0 %.

Вік хворих становив 39-75 ($58,2 \pm 3,3$) років, з них були 42 жінки, чоловіків – 6. Переважали хворі у віці від 50 до 60 років - 33 (68,7%) особи. Тривалість анамнезу жовчнокам'яної хвороби була від декількох місяців до 20 років, а середня тривалість хвороби становила ($6,7 \pm 2,4$) років.

Одномоментна функціональна проба на відновлення з дозованим фізичним навантаженням Мартине-Кушелєвського, яка проводилася в основній групі хворих у передопераційному періоді (за 14-21 день до холецистектомії), виявила відмінну (2 хворих), добру (11 хворих) і задовільну (8 хворих) нормотонічні реакції серцево-судинної системи. Отже, на виконання фізичного навантаження, крім захворювань, потенційно можуть вплинути різноманітні фактори, у тому числі - рівень фізичної тренуваності. У решти хворих спостерігали гіпертонічну

(1 хвора), дистонічну (1 хвора), зі ступінчастим підйомом систолічного артеріального тиску (1 хвора) реакції серцево-судинної системи на фізичне навантаження. В подальшому цим трьом хворим фізична терапія за відповідною методикою не проводилася.

Було встановлено, що напередодні холецистектомії (за 1-2 доби перед операцією) показники скоротливої здатності міокарда лівого шлуночка були такими: для основної групи систоло-діастолічний коефіцієнт ΔS становив $(37,2 \pm 2,1) \%$, а для контрольної групи – $(30,7 \pm 1,8) \%$ ($P < 0,05$); для основної групи УО склав $(75,3 \pm 2,6)$ мл, а для контрольної – $(64,5 \pm 2,5)$ мл ($P < 0,02$); для основної групи ФВ була $(68,6 \pm 2,2) \%$, а для контрольної – $(61,4 \pm 1,5) \%$ ($P < 0,05$).

Як видно з порівняльного аналізу, у основній групі показники ΔS , УО і ФВ були достовірно більшими порівняно з контрольною групою хворих. Однак у даному випадку не можна спростувати і ймовірно кращу загальну фізичну підготовку хворих основної групи.

У віддаленому післяопераційному періоді на амбулаторно-поліклінічному етапі реабілітації (через 4-6 тижнів після холецистектомії) показники УО в групах не відрізнялись між собою і були такими: для основної групи – $(83,6 \pm 7,1)$ мл і для контрольної групи – $(72,2 \pm 6,2)$ мл ($P > 0,05$). Щодо ΔS і ФВ, то вони достовірно відрізнялись. Вони становили для ΔS щодо основної групи – $(35,3 \pm 1,1) \%$ і для контрольної групи – $(29,8 \pm 1,3) \%$ ($P < 0,05$); і відповідно для ФВ $(64,5 \pm 2,1) \%$ і $(59,5 \pm 2,0) \%$ ($P < 0,05$).

Отже, за показниками ΔS і ФВ скоротлива здатність міокарда лівого шлуночка достовірно краща у хворих, які отримували фізичну терапію у до- і післяопераційному періодах при плановому хірургічному лікуванні хронічного калькульозного холецистититу, що свідчить про кращу відновну функцію міокарда, його більші резервні можливості у випадку застосування фізичної реабілітації.

Однак слід враховувати довільний характер дозування хворими фізичного навантаження, особливо на амбулаторно-поліклінічному етапі реабілітації, що вносить елемент суб'єктивізму і призводить до залежності отриманих результатів від співпраці хворих з лікарем і фахівцем з фізичної терапії.

Висновки: 1) Фізична терапія у хворих з приводу планового хірургічного лікування хронічного калькульозного холецистититу доцільна і зводиться до застосування індивідуальної програми у до- і післяопераційному періодах; 2) пе-

ред застосуванням фізичної терапії проведення функціональної проби Мартиненкушелевського дозволить виявити несприятливу адаптаційно-приспосувальну реакцію серцево-судинної системи до фізичного навантаження, що в подальшому потребує медикаментозної корекції перед оперативним втручанням; 3) при комплексному лікуванні хворих на хронічний калькульозний холецистит, застосування фізичної терапії зумовлює більш кращу скоротливу функцію міокарда лівого шлуночка у віддаленому післяопераційному періоді згідно з ехокардіографічними показниками – ступеня вкорочення передньо-заднього розміру лівого шлуночка в систолу (ΔS) і фракції викиду.

Перспективи подальшого дослідження торкаються вивчення особливостей застосування фізичної терапії залежно від методу оперативного втручання (відкритий, ендоскопічний) на функціональний стан організму.

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Manasova Gulsym, As. Prof., M.D.,

Zelinsky Alexandr, Prof., M.D.,

Shapoval Nikolay,

Prof., M.D., Odessa National Medical University, Medical Faculty,

Kuzmin Natalia,

Obstetrics and Gynecology Doctor,

Kazarenko Olga,

Obstetrics and Gynecology Doctor, Resident of the Communal Health

Protection Institution "Maternity Hospital №5", Odessa, Ukraine

Vitamin D as a component of calcium-controlling hormones system in pregnant women with perinatal infection

Vitamin D (VD) and its active metabolites, along with parathyroid hormone (PTH), calcitonin (CaT), and estrogens, are structural units of the hormonal system that regulates calcium and phosphorus homeostasis. It is known that the main feature of calcium homeostasis is the existence of so-called "set point": change in blood calcium concentration beyond the limits of physiological norm (from 2 to 2.8 mmol/l) causes an instantaneous response of the parathyroid glands and / or thyroid gland C-cells whose main function is to normalize the calcium levels [1]. The VD role in the regulation of calcium-phosphorus metabolism is considered its most thoroughly known, "classical" role [2, 3, 4].

If insufficient outside intake or violation of hormonally active form of VD synthesis steps take place a series of the processes that lead to the disruption of calcium-phosphorus homeostasis start. Prolonged hypocalcemia, hypophosphatemia, secondary hyperparathyroidism, in turn, contribute to the development of osteopenia or osteoporosis [5, 6].

The mechanisms of the calcium regulation in blood depend on the activity of bone tissue metabolic processes, the rate of synthesis and bone tissue resorption. During pregnancy, due to the needs of the fetus high requirements are set to the calcium homeostasis [7, 8, 9].

It is reported that VD-deficient state (VDDS) only 90% of calcium is absorbed and phosphorus absorption is by 60% less than at the optimum content of VD: this confirms VDDS negative impact on the bone tissue state during pregnancy [10].

As for PTH activity changes during pregnancy, many researchers took the view of a so-called "physiological hyperparathyroidism" aimed at maintaining normal blood calcium levels [11]; there is also a view of the absence of any change in its content [12, 13].

There is no consensus regarding the dynamics of CaT content in the blood during pregnancy, too. According to some reports, its concentration does not change during pregnancy [14], according to other sources increase in its level takes place [15].

The objective: to study the dynamics of the calcium-controlling hormones in the blood of pregnant women with perinatal infection and the osteopenic syndrome.

Materials and methods. 363 pregnant women have been examined, 192 women had osteopenic syndrome (OPS) at the background of verified perinatal infection (VPI) by TORCH group different agents. They were included into the treatment group I-A (TG). I-B group included 43 pregnant women with VPI, without osteopenia symptoms, the control group (II) consisted of 128 women with physiological course of gestation.

By age, labours parity, the nature of physical problems, they groups under examination had no significant differences.

All the women underwent a complete clinical and laboratory examination according to the regulations of the Ukrainian Ministry of Health Care.

Verification of infection was carried out by bacterioscopic and bacteriological research, enzyme multiplied immunoassay with the use of paired sera and avidity determination and PCR diagnostics.

The structural state of the bone tissue was determined by ultrasound densitometry of calcaneus (apparatus «Sonost», South Korea, 2006).

By immunochemiluminiscent methods of analysis (analyzer Elecsys, 2010) 25 (OH) VD and intact - PTH (i-PTH) were analyzed. To define i-PTH enzymatically amplified "two-step" sandwich-type immunoassay was used. Blood CaT was determined by immunochemiluminescent method with the use of automatic analyzer "Immulite-1000", Siemens, USA, 2008.

All studies were carried out in the 2nd, 3rd trimester of pregnancy and on the 4th post-partum day.

Results and their discussion. In the women with physiological pregnancy VD content in blood decreased slightly with increasing gestational age and amounted to (87.36 ± 2.44) nmol/l, (84.22 ± 2.51) and (80.44 ± 2.07) nmol/l, respectively to the 2nd and 3rd trimester of pregnancy and postpartum period (Figure 1).

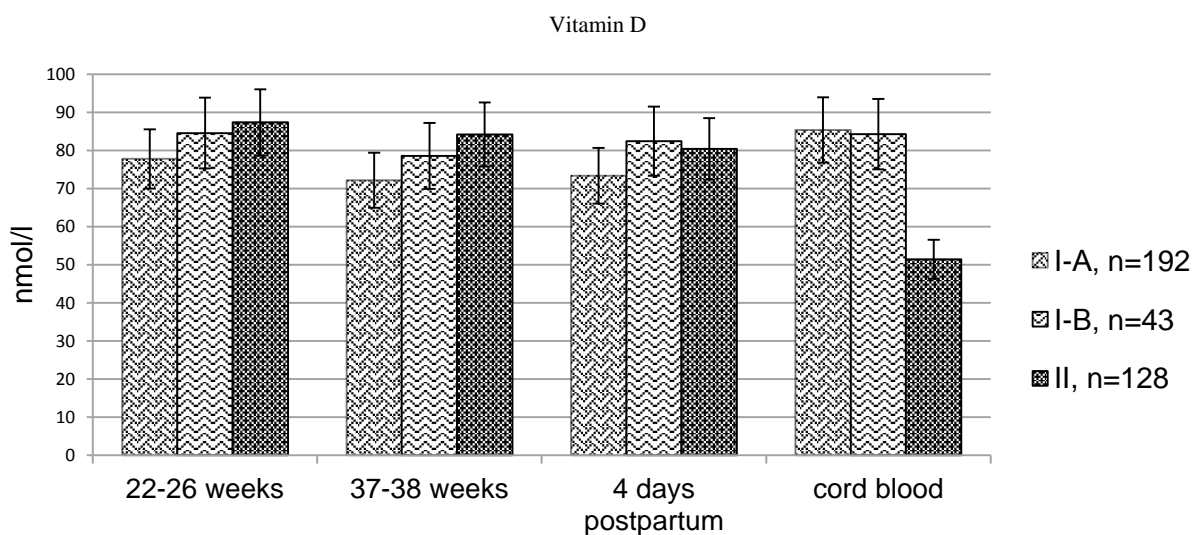


Fig. 1. Dynamics of vitamin D among the women under examination

In VPI groups (I-A and I-B) VD level also decreased during pregnancy (77.78 ± 1.18) nmol/l, (72.17 ± 1.63) and (73.38 ± 1.69) nmol/l; (84.58 ± 0.99) nmol/l, (78.56 ± 1.31) and (82.45 ± 1.14) nmol/l); and after labours there was its slight increase.

In the group of women with osteopenic syndrome (OPS - I-A), VD concentration was significantly lower than in group II ($p < 0.001$) and in VPI women without osteal pathology (I-B) VD reduction compared to group II was insignificant ($p > 0.05$).

It is fair to assume that low VD indexes at VPI are associated with the disorder or dysfunction of certain links of vitamin D active forms synthesis (hydroxylation) in the liver and kidneys due to chronic inflammatory changes.

It is known that in physiological pregnancy there is a clear correlation between VD content in maternal plasma and umbilical blood: a child's VD is 75-80% of that of the mother [16].

According to our data, in the umbilical blood of healthy pregnant VD level was (51.40 ± 1.49) nmol/l; in I-A group pregnant it was (85.39 ± 3.33) nmol/l ($p < 0.001$)

and in I-B group it was (84.29 ± 1.61) nmol/l ($p_{I-B-contr.} \leq 0,001; P_{I-A - IB} > 0.05$), at the VPI pregnant women VD level in umbilical blood is almost twice higher than its concentration in healthy pregnant women.

Probably, VD high concentration in the umbilical blood of VPI children may be related to violation of the placenta deposit and transport function and impaired transport of calcium ions to the fetus. This assumption is confirmed by significantly lower content of calcium in the umbilical blood of newborns in the VPI group: (2.16 ± 0.03) against (2.65 ± 0.17) mmol/l of total and (1.41 ± 0.04) against (1.08 ± 0.02) mg/l of the ionized calcium ($p < 0.01$).

It is also possible that this increase in the concentration of 1,25(OH)2D3 in umbilical blood of newborns at VPI provides calcium transition against concentration gradient. Influence of the fetus’s kidneys, placenta and decidua also acquire importance. The VD increased level can also be a response to heightened osteolysis in pregnant women with systemic inflammatory response syndrome (SIRS).

While investigating parathyroid glands function it has been found that healthy women pregnancy course is accompanied by their activation (Figure 2).

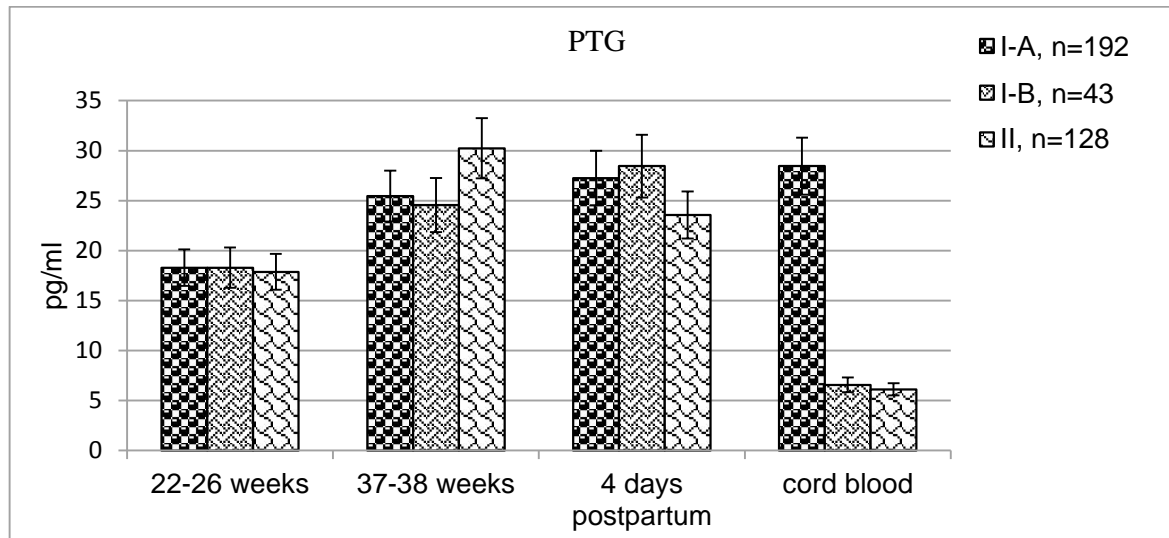


Fig. 2. The dynamics of parathyroid hormone in women under examination

The PTH’s concentration in the 3rd trimester of pregnancy increased almost twice (30.24 ± 0.79) and (17.87 ± 0.55) pg/ml. In the postpartum period PTH’s levels in this group decreased to (23.55 ± 0.93) pg/ml.

At the VPI (I - A group) PTH activity with increase of gestational age, as well as after labours, was characterized by the slight proplasia and constituted: $(18.29 \pm$

0.29) pg/ml, (25.46 ± 1.09) and (27.25 ± 0.83) pg/ml respectively to the terms of examination ($p < 0.01$). There were no significant differences in the activity of the PTH in I-A and I-B groups: (18.29 ± 0.21) pg/ml (24.56 ± 0.89) and (0.69 ± 28.45) pg/ml, ($p_{I-A-I-B} > 0.05$), but if in the 2nd trimester the difference in the PTH content in the blood of the pregnant women in all groups did not reach the level of significance ($p > 0.05$), then in the 3rd trimester, and on the fourth day after labours the difference between I-B (patients with VPI and without initial osteopenia) and II (healthy pregnant women) group became significant ($p < 0.001$).

These findings suggest that healthy pregnant women have phenomenon of "physiological hyperparathyroidism".

At the VPI PTH activation in the 3rd trimester is less pronounced. Perhaps, mechanism of parathyroid glands stimulation is violated in these women due to the impact of the pro- and anti-inflammatory cytokines, which can inhibit the function of the parathyroid glands [17, 18].

Indexes of the PTH content in umbilical blood reflect physiological mechanisms of this hormone transport via placenta, or, more precisely, the failure of the maternal PTH to cross the placental barrier. Concentration of the PTH in the umbilical blood of newborns in I-B and II group was (6.57 ± 0.19) and ($0.07 \pm 6,12$) pg/ml, which is 4-5 times less than in the 3rd trimester of pregnancy in the maternal blood. Apparently, a higher content of PTH in the umbilical blood of newborns born by the VPI and the osteopenia mothers (I-A – 28.45 ± 0.42 pg/ml) indicates the activity of the children's parathyroid glands.

The indexes of the PTH content might reflect the activity of the parathyroid glands of the fetus, which start their function from 12-13 weeks of gestation.

With regard to calcitonin, its concentration in the blood of patients in both groups at the end of pregnancy increased. After labours there was the slight decrease (11.89 ± 0.16) pg/ml, (15.08 ± 0.16) and (12.98 ± 0.20) pg/ml in group II ($p \leq 0.05$), (9.45 ± 0.16) pg/ml; (11.17 ± 0.17) and (11.05 ± 0.18) pg/ml in group I – A, ($p \leq 0.05$), (11.35 ± 0.42) pg/ml, (14.27 ± 0.43) and (9.56 ± 0.44) in group I-B, but in a group of the VPI women all the indexes were significantly lower ($p < 0.001$) than in healthy pregnant women (Fig. 3).

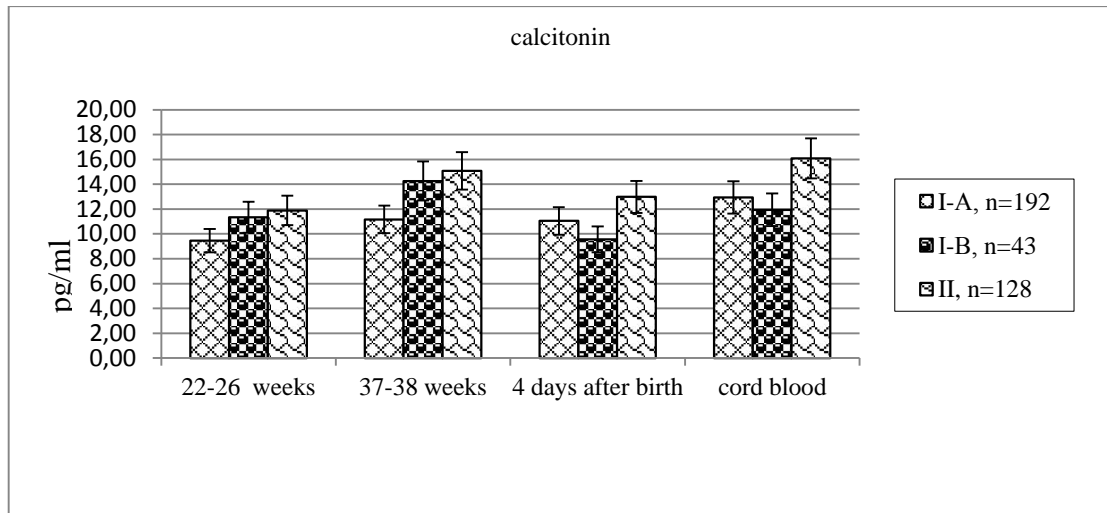


Fig. 3. Dynamics of calcitonin in the women under examination

In the postpartum period in the CaT concentration decreased in all groups.

It is known that CaT is a potent inhibitor of osteoclast formation, and its secretion is regulated directly by ionized calcium content in blood serum. The CaT level is the highest during pregnancy and lactation, in newborns, and in the period of active growth. There is sex hormones effect on its secretion [19, 20].

In view of the above mentioned CaT's properties, the indexes obtained reflect the thyroid glands C-cells activation as far as gestation progression. Probably, it could be one of the mechanisms aimed at preserving bone mineral density of the pregnant woman. Also, activation of CaT secretion by estrogens, the numbers of which increases by the term of the labours, may be suggested.

Conclusions. Vitamin D content in healthy pregnant women blood and pregnant women with perinatal infection as far as of gestation progression decreases; at infection its concentration is significantly lower than in healthy women.

In healthy women, the function of the parathyroid glands is characterized by activation by the end of pregnancy. At infection this process is less pronounced. Perhaps this is one of the mechanisms to ensure an adequate level of calcium in blood and protect pregnant against bone resorption. At physiological pregnancy functioning of the system “parathyroid glands - calcium level - the intestine - the bone - parathyroid glands” is well-balanced.

Significantly lower rates of CaT and VD in the VPI pregnant may indicate dysfunction of protective, compensatory mechanisms of the body, regulating calcium

homeostasis. Apparently, the reason for this is SIRS in which the target organs are involved in the synthesis of active VD and CaT forms are engaged.

The result of parathyroid glands activation, VDDS and oppression of CaT synthesis is hypocalcemia, which, ultimately, can lead to the osteopenic syndrome and other pregnancy complications, such as late gestosis, anomalies of labor and other.

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Katerina Gryn,

Poltava`s Regional Klinical Psychiatric

Hospital named after A.F. Maltsev,

Psychiatrist, Candidate of Medical Sciences,

Vladimir Gryn,

Higher State Educational Institution of Ukraine

"Ukrainian Medical Stomatological Academy",

Docent, Candidate of Medical Sciences, Cathedra of Human Anatomy

The treatment of recurrent depression with the biological rhythms

Гринь Катерина, *Полтавська обласна клінічна*

психіатрична лікарня ім. О.Ф. Мальцева,

лікар-психіатр I категорії, кандидат медичних наук,

Володимир Гринь, *Вищий державний навчальний заклад*

«Українська медична стоматологічна академія»,

доцент, кандидат медичних наук, кафедра анатомії людини

Лікування рекурентних депресивних розладів з урахуванням біологічних ритмів

Актуальність проблеми депресій обумовлена їх поширеністю, суттєвим впливом на якість життя, соціальне функціонування людини практично у всіх сферах життя: трудовій, сімейній, у сфері соціальних контактів [1]. Депресія відноситься до захворювань, які супроводжуються вираженими медико-соціальними наслідками, серед яких інвалідність, суїциди та економічні збитки [2, 3, 4]. Показники непрацездатності при депресивних розладах перевищують аналогічні показники при цереброваскулярних та серцево-судинних захворюваннях. Згідно з прогнозом ВООЗ, до 2020 року депресія посяде друге місце після ішемічної хвороби серця серед причин інвалідності [5]. Чисельні схеми і стандарти лікування депресивних розладів підтверджують той факт, що всі пацієн-

ти з депресивними розладами повинні отримувати лікування, яке повинно розпочинатись як можна раніше [6]. Сьогодні продовжується пошук нових антидепресантів, застосування яких дозволить збільшити ефективність терапії депресивних розладів та попередити розвиток побічних ефектів [3].

Не дивлячись на стрімкий розвиток психофармакології, численні дослідження клінічних проявів депресивних розладів, проблема депресії залишається надзвичайно актуальною, потребує подальших досліджень.

Мета і задачі дослідження. Розробити комплексну, ефективну систему діагностики та терапії рекурентних депресивних розладів на підставі вивчення їх клініко-психопатологічних та біоритмологічних особливостей.

Матеріали та методи дослідження. За допомогою клініко-анамнестичного, клініко-психопатологічного та біоритмологічного методів, після отримання інформованої згоди, було обстежено 130 пацієнтів з рекурентним депресивним розладом, що знаходилися на стаціонарному лікуванні в Полтавській обласній клінічній психіатричній лікарні ім. О. Ф. Мальцева. Всіх обстежених пацієнтів було розподілено на три клініко-діагностичні групи за критерієм ступеню вираженості депресивного епізоду. При цьому керувалися клінічною оцінкою поточного депресивного стану за критеріями МКХ-10 [7] та результатом первинного обстеження пацієнтів за шкалою HAM-D-21 [8].

Комплексна оцінка ефективності терапії здійснювалася шляхом клініко-психопатологічного спостереження в умовах стаціонару за редукцією афективної симптоматики, повторними психодіагностичними обстеженнями з використанням шкал CGI-I (через два, чотири та шість тижнів терапії), CGI-S (при первинному обстеженні та через шість тижнів терапії) та проводилася по кожній клінічній групі окремо.

Результати та їх обговорення. В результаті проведеного біоритмологічного дослідження було встановлено три типи біологічних ритмів, максимуми яких припадають на ранкові, денні та вечірні години, що, згідно з сучасними уявленнями про біоритмологічний статус організму, відповідає трьом типам працездатності людини: ранковому, вечірньому та індіферентному [9]. Серед обстежених пацієнтів осіб ранкового типу було 75 (57,69%), вечірнього – 19 (14,62%), індіферентного типу – 36 (27,69%).

Після проведеного клініко-психопатологічного обстеження з визначенням ступеню тяжкості депресивного епізоду встановлено, що до I клінічної групи

увійшло 40 (30,76%) обстежених з легким ступенем тяжкості депресивного епізоду (середній бал за HAMD-21 15,2), до II групи – 50 (38,48%) пацієнтів з депресією середнього ступеню вираженості (24,66 балів за HAMD-21), до III клінічної групи увійшло 40 (30,76%) обстежених з тяжким депресивним епізодом (33,77 балів за HAMD-21).

На наступному етапі дослідження у кожній з трьох клінічних груп було виділено окрему підгрупу, що складала 50% пацієнтів кожної групи з метою призначення та дослідження ефективності антидепресанту з циркадіанним механізмом дії (агомелатину). Серед обстежених основних клінічних груп 20 осіб у I, 25 – у II та 20 у III отримували в якості антидепресивної монотерапії агомелатин у дозуванні 25–50 мг на добу, залежно від тяжкості депресивного епізоду. В даних підгрупах враховувався основний принцип хронотерапії, тобто призначення основної дози антидепресанту припадало на період найбільшої фізіологічної активності організму. Не зважаючи на рекомендації щодо застосування агомелатину у вечірній час, препарат призначався пацієнтам ранкового хронотипу у ранкові години.

Інші 50% пацієнтів кожної з клінічних груп отримували антидепресивну терапію за синдромальним принципом з тенденцією до монотерапії: пацієнтам з тривожно-депресивною симптоматикою призначався препарат з групи інгібіторів зворотнього захоплення серотоніну (ІЗЗС) – пароксетин в індивідуально підібраній дозі 20-40 мг на добу. Хворим з апато-адинамічним варіантом депресії призначали 4-циклічні антидепресанти (меліпрамін, міансерін в дозі 30-60 мг/добу) і, за необхідності, тимонейролептики (еглоніл 100-400 мг/добу) або атиповий антипсихотичний засіб (кветіапін, амісульприд 50–200 мг/добу). У пацієнтів з провідною тужливою симптоматикою депресивного стану також віддавали перевагу ІЗЗС (пароксетин, сертралін, ципралекс). Рівень дозування в даній синдромальній підгрупі був аналогічним такому у хворих з тривожно-депресивною симптоматикою. У випадках астено-анергічного варіанту депресивного стану ми призначали тимонейролептичні засоби (еглоніл) в малих дозах (50-100 мг на добу) у поєднанні з інгібіторами зворотного захвату серотоніну і норадреналіну (венлафаксин 37,5 до 150 мг на добу). При сенесто-іпохондричних або сомато-вегетативних проявах пацієнти отримували комбінацію тимонейролептиків (еглоніл) та антидепресанту з групи інгібіторів зворотного захвату серотоніну і норадреналіну (венлафаксин 37,5-150 мг/добу). Випадки

депресивно-параноїдного варіанту депресивного епізоду потребували призначення пацієнтам комбінації антидепресанта і антипсихотичного засобу [10, 11] (призначалися амісульприд і кветіапін 400 до 800 мг на добу). При депресивно-істеричному синдромі, який зустрічався у поодиноких випадках, призначались антидепресанти групи ІЗЗС у відповідних тяжкості психічного стану дозах.

На етапі призначення профілактичної терапії безпосередньо перед завершенням стаціонарного лікування пацієнтам призначалися відповідні антидепресивні та (або) антипсихотичні засоби в підтримуючих дозах [12]. В даних підгрупах також враховувався основний принцип хронотерапії, тобто призначення основної дози антидепресанту припадало на період найбільшої фізіологічної активності організму.

Динаміка редукції депресивної симптоматики в двох підгрупах I клінічної групи мала споріднений характер з тенденцією до більш прискореного антидепресивного ефекту у пацієнтів, що отримували агомелатін. Найбільш низькі показники за шкалою CGI-I на 6-му тижні терапії мали місце у представників вечірнього циркадіанного хронотипу, які приймали агомелатін (1,03). У II клінічній групі також спостерігалася споріднена динаміка усунення депресивної симптоматики в обох клінічних підгрупах. Тенденція до більш швидкого формування ремісії була більше виражена у пацієнтів I підгрупи. Особи вечірнього типу циркадіанності, які приймали агомелатін, виявили найкращі показники за шкалою CGI-I наприкінці лікування (1,12). У хворих на рекурентний депресивний розлад III клінічної групи більш швидке становлення ремісії мало місце у пацієнтів, що отримували агомелатін, причому у осіб вечірнього хронотипу ця динаміка була найкращою.

Висновки та перспективи подальших досліджень. Таким чином, запропонована в нашому дослідженні система діагностики та терапії рекурентних депресій з урахуванням індивідуального біоритмологічного статусу потребує комплексного застосування медикаментозної терапії відповідно до стану циркадіанних ритмів пацієнтів. Загальна ефективність лікування рекурентного депресивного розладу на засадах хронотерапії була достатньо високою в усіх клінічних групах і підгрупах. Застосування розробленої комплексної системи лікувально-профілактичних заходів щодо рекурентних депресивних розладів на засадах хрономедицини довело її достатню ефективність, причому найбільш високою вона була у пацієнтів вечірнього цирка-

діанного хронотипу, які отримували антидепресант з циркадіанним механізмом дії, що дозволяє вважати таких пацієнтів популяційною когортою для призначення цього препарату, як антидепресанту вибору. Застосування принципів хронодіагностики, хронотерапії та хронопрофілактики в курації хворих на рекурентний депресивний розлад з відповідним підбором конкретного антидепресанту в залежності від хронотипу та синдромальної структури епізоду дозволить суттєво підвищити ефективність існуючих на сьогодні терапевтичних стратегій та є перспективним напрямком у лікуванні афективних розладів у клінічній психіатрії.

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Sydora Natalia,

*National University of Pharmacy,
Associate Professor, Ph.D. Degree,
the Department of Pharmacognosy,*

Kovalyova Alla,

*National University of Pharmacy,
Professor, Doctor of Pharmaceutical Sciences,
the Department of Pharmacognosy,*

Komissarenko Andriy,

*National University of Pharmacy,
Professor, Doctor of Pharmaceutical Sciences,
the Department of Chemistry of Natural Compounds*

Research the organic acids of flowers of hawthorn species from the section Sanguineae L.

The specific search of biologically active substances (BAS) it is one of the actual directions of the pharmaceutical science. The Hawthorn genus (*Crataegus L.*) by family *Rosaceae* include about 1500 species and its representatives are divided in 25 botanical sections [1]. Hawthorn flowers are used in medical practice as raw material for obtaining of antihypertensives and sedatives preparations. This is due to their chemical composition, which are presented by phenolic compounds (hydroxycinnamic acids, flavonoids) and aminoacids. But scientific interest presents research the other classes of BAS for creation the substances possessing the other types of biological activity. We have studied the composition of terpenoids from hawthorn flowers belonging the sections *Oxyacanthae* Loud. and *Tenuifoliae* Sarg., aromatic and aliphatic acids from flowers of the section *Oxyacanthae L.*, fatty acids composition the species of the section *Sanguineae L.* [2, 3, 4, 5, 6].

The aim of our study was to investigate the qualitative and quantitative content the organic acids of flowers from genus *Crataegus L.* of section *Sanguineae L.*

The species of the section *Sanguineae L.* – are trees or shrubs with ovate-rhombic, pinnated, lobed leaves and naked or pubescent inflorescences; red, yellow or black fruits, with 3-5 three-edged stones. The distribution area of the plants – is

the Central Asia, China, Siberia and the Far East. The section contains a cycle *Sanguineae* and sub-cycle *Nigrae*, which includes the species *C. nigra* Waldst. Et Kit. and *C. chlorosarca* Maxim. [1].

C. chlorosarca Maxim., in comparison with other species of the section, is characterized of less than cut the leaves and greenish pulp. Areal of distribution of the species is the Far East, Japan.

C. kansuensis Wils. – is representative of the China flora. Unlike the other species of the section, it has 2-3 seeds and small leaves. *C. maximowiczii* C.K. Schneid. is differs from other forms heavily bulging, gray-pubescent stems and heavily pubescent inflorescences, the species is distributed in Siberia and the Far East.

C. x schneideri C.K. Schneid. – is a hybrid of *C. nigra* x *C. monogyna*. This species differs from *C. nigra* lightly pubescent from below leaves and serrated along the edge of stipules. Unlike *C. monogyna* has 2 ossicles. Decorative plants, blooms profusely [4]. *C. x almaatensis* Pojark. – is a hybrid *C. rusanovii* x *C. songarica*. Different by the naked inflorescences and form the leaves. It is widespread in the Central Asia.

Materials and methods

The objects of study was the air-dried samples of raw material – flowers *C. x almaatensis* Pojark., *C. kansuensis* Wils., *C. x schneideri* C.K. Schneid., *C. maximowiczii* C.K. Schneid. and *C. chlorosarca* Maxim., collected in May 2015 in bud stage in Botanical garden of National University of Karazin M.N. (Kharkiv, Ukraine).

Qualitative composition and quantitative content of organic acids was determined by chromatography mass spectrometry method in chromatograph Agilent Technology 6890N with a mass spectrometer detector 5973N.

For extraction the compounds from raw material used hexane. Conditions for the analysis: chromatographic capillary column DB-5 (diameter 0,25 mm); carrier gas – helium; the temperature of thermostat 50 °C with programming 4°/min. to 320 °C. For identification of the components used data from the libraries of mass spectra NIST05 and WILEY 2007 with a total number of spectra 470000 in complex with programs for identification AMDIS and NIST. The content of the substances calculated with reference to the internal standard (solution of tridecane in hexane) [7, 8].

Results and discussion

As a result of chromatography-mass spectrometry investigation are identified 18 organic acids: monobasic carboxylic acid – capronic; dicarboxylic acid – formic, malonic, fumaric, succinic, 3-hydroxy-2-methylsuccinic, malic, azelainic; tricarboxylic acid – citric; phenolcarboxylic acids – vanillic, benzoic, *p*-hydroxybenzoic, lilac, gentisic; phenylcarboxylic acid – phenylacetic; hydroxycinnamic acids – ferulic and *p*-coumaric.

The sum of acids in flowers (%) in recalculated on absolutely dry raw material was: *C. x almaatensis* Pojark. 2.81, *C. kansuensis* Wils. 2.88, *C. x schneideri* C.K. Schneid. 1.29, *C. maximowiczii* C.K. Schneid. 1.43, *C. chlorosarca* Maxim. 1.58. In flowers of *C. chlorosarca* Maxim. In all species are predominate citric, malic and oxalic acids.

In the flowers of *C x almaatensis* Pojark., in comparison with other species, the greatest concentration identified for phenolcarboxylic acids: benzoic (1.42%), vanillic (0.46%), *p*-hydroxybenzoic (1.49%), lilac (0.8%); hydroxycinnamic acids - ferulic (1.31%).

In flowers of *C. kansuensis* Wils. in greatest concentration were identified dicarboxylic acids: malonic acid (9.15%), 3-hydroxy-2-methylsuccinic (7.68%) and fumaric acid (1.10%); phenol carbonic acids: salicylic (0.32%) and gentisic (0.42%).

In flowers of *C. maximowiczii* C.K. Schneid. are identified the carboxylic acid: 3-hydroxy-2-methylsuccinic (16.94%); phenolcarboxylic acid: *p*-hydroxybenzoic (1.14%); hydroxycinnamic acid: ferulic (1.38%).

In quantitative content of organic acids all studied species is concede the flowers of *C. x schneideri* C.K. Schneid., in which, based on the total acids, are predominate dicarboxylic acids: oxalic (26.9%) and malonic (19.8%); tricarboxylic acid - citric (34.6%). Hydroxycinnamic acid represented by ferulic (0.54%).

C. chlorosarca Maxim. in chemical composition differs from all studied species, together with other substances are identified phenylacetic (0.07%) and *p*-coumaric (0.65%) acids.

Conclusions

By the method of chromatography-mass-spectrometry in the flowers of *C. x almaatensis* Pojark., *C. kansuensis* Wils., *C. x schneideri* C.K. Schneid., *C. maximowiczii* C.K. Schneid. and *C. chlorosarca* Maxim. had been founded 18 organic acids. The sum of acids in recalculated to absolutely dry raw material was (%): *C. x*

almaatensis Pojark. 2.81, *C. kansuensis* Wils. 2.88, *C. x schneideri* C.K. Schneid. 1.29, *C. maximowiczii* C.K. Schneid. 1.43, *C. chlorosarca* Maxim. 1.58. In all species are dominated malic, citric and formic acids. Hydroxycinnamic acid are presented by p-ferulic and *p*-coumaric. In the flowers of *C. chlorosarca* Maxim. are identified phenylacetic (0.07%) and *p*-coumaric (0.65%) acids. Considering the obtained results, we can conclude the prospects the study the species of Hawthorne as a sources of organic acids.

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Koshovyi Oleh, *National University of Pharmacy,
Assoc. Prof, Doctor of Pharmacy, Department of Pharmacognosy,*

Upyr Taras, *National University of Pharmacy,
Post-Graduate Student of Pharmacognosy Department,
Komissarenko Andrey*, *National University of Pharmacy,
Professor, Doctor of Pharmacy, Department of Chemistry
of Natural Compounds*

Phytochemical and pharmacological study of the dry extract of Labrador tea shoots

Formulation of a scientific problem and its importance

Labrador tea shoots (*Cornus Ledi palustris*) - has long been used in folk medicine as an antispasmodic, diuretic, diaphoretic, disinfectant, anti-inflammatory, soothing and antitussive remedy.

Just one medication from this raw material was produced in Ukraine. It was "Ledin", which used as antitussive remedy. Packed raw material of Labrador tea shoots are also produced in Ukraine. It is evidence that capacity of labrador tea shoots does not use comprehensively. Because for now, just only packed raw materials remain on drugstores shelves [1, 2].

Analysis of this problem

Pharmaceutical market of anti-inflammatory drugs are mostly represented by synthetic origin nonsteroidal anti-inflammatory drugs with a large number of side effects and medical contraindications. Herbal medicines have much less medical contraindications and side effect, therefore the search of new natural anti-inflammatory drugs is an urgent task of modern phytochemistry. Labrador tea shoots is one of the most promising raw material for creating of new medications with anti-inflammatory activity [1, 2].

Aim and tasks of the article

The aim of our research was phytochemical study of biologically active substances (BAS) of the Labrador tea shoots dry extract, to create new medicines with antimicrobial and anti-inflammatory activities. To reach this aim such tasks were set: obtain the dry extract from *Ledum palustre* shoots; determine the qualitative and

quantitative composition of the dry extract BAS; investigate the antimicrobial and anti-inflammatory activities of the dry extract.

Materials, Methods and Results

The object of our research was a dry extract of Labrador tea shoots. Raw material of *Ledum palustre* shoots was chopped by way of rolling and sifted through sieve with diameter of holes 3 mm. 0.5 kg of this raw material was extracted by 2000 ml of 50% ethyl alcohol at room temperature for one day. Extraction was performed three times to exhaustion with a new portion of extractant. Then extracts were combined and evaporated in the vacuum-circulation apparatus at 100 °C and 340 mm Hg till the dry extract was obtained. The volume of extractable substances was 13,7%.

Primary research of BAS qualitative composition of the dry extract was determined by: generally accepted qualitative reactions, thin layer chromatography (TLC) and paper chromatography (PC) methods. By method of qualitative reactions, presence of hydroxycinnamic acids, flavonoids and tannins were established. By method of TLC and PC the organic acids (levulinic and succinic), amino acids (aspartic and glutamic), hydroxycinnamic acids (caffeic and chlorogenic), flavonoids (quercetin and rutin) and terpenoids (ledol, p-cymene and 1.8 cineol) were identified [1, 2].

Qualitative and quantitative determination of phenolic compounds, free and bound amino acids and monosaccharides before and after hydrolysis in the dry extract were carried out with gas chromatography-mass spectrometry method. Chromatograph Agilent Technologies model 1100 with vacuum degasifier G1379A, low pressure gradient pump with 4-channel G13111A, automatic injector G1313A, column oven G13116A and diode array detector G1316A were used for the analyzes. Chromatography column «ZORBAX-SB» C-18 2,1 × 150 mm, with octadecylsilil sorbent, with graininess 3,5 μm were used for the analyzes. Identification is carried out by the retention time and spectral characteristics [2, 3, 4].

In the dry extract of *Ledum palustre* shoots 17 phenolic compounds (simple phenol - 1, hydroxycinnamic acids – 3, flavanoids 15) were found. 8 substances were identified. The dominant compounds are (-) - epicatechin (32147.73 mg/kg), (+) - D-catechin (28172.35 mg/kg) and rutin (8997.22 mg/kg). Total content of phenolic compounds was 133,73 g/kg.

Content of free amino acids in dry extract was 2767,54 mg/kg. 8 free amino acids were identified. Among them the highest content was determined for g-aminobutyrate 262,21 mg/kg, proline (231,26 mg/kg) and asparagine (437,43 mg/kg).

Content of bound amino acids was 4115,34 mg/kg in dry extract. 16 bound amino acids were identified. Among them the highest content was found for asparaginic acid (373,08 mg/kg), alanine (556,67 mg/kg) and phenylalanine (377,46 mg/kg).

Content of monosaccharides before the hydrolysis was 31,59 g/kg in the dry extract. Glucose 10,05 g/kg and rhamnose 13,89 g/kg had the highest content. Content of monosaccharides after the hydrolysis by hydrochloric acid was 47,34 g/kg in the dry extract. Glucose 11,24 g/kg, rhamnose 21,12 g/kg and arabinose 10,52 g/kg have the highest content.

Determination of qualitative and quantitative composition of organic acids and terpenoids in dry extract were carried out on Agilent Technologies 6890 chromatograph with mass spectrometric detector 5973 and chromatography column - DB-5 with diameter 0.25 mm and a length of 30 m. For components identification library of mass spectra NIST05 and WILEY 2007 with a total number of spectra more than 470,000 in conjunction with the AMDIS and NIST programs were used [1].

Total content of organic acids in the dry extract was 27,11 g/kg. 17 organic acids were identified. Among them the highest content was determined for levulinic acid 9,62 g/kg, citric acid 8,46 g/kg and malic acid 4,47 g/kg.

22 terpenoids were found in the dry extract. Among them 21 were identified with the highest content of ledol (14.47 g/kg), korimbolon (9,19 g/kg) and *p*-cymene (6,02 g/kg).

General polyphenolic compounds and hydroxycinnamic acids in dry extract of Labrador tea shoots were determined by direct spectrophotometry at a wavelength of 270 nm with calculation on gallic acid and at a wavelength 327 nm with calculation on chlorogenic acid. Content of flavonoids were determined by differential spectrophotometry in calculation on rutin after reaction with aluminum chloride at a wavelength of 417 nm [2].

The qualitative content of general polyphenol, flavonoids and hydroxycinnamic acids in the labrador tea dry extract were 13.47%, 1.66% and 12.01% respectively.

Study of antibacterial activity of the dry extract was carried out by agar diffusion method in Mechnikov Institute under the supervision of Dr. T.P. Osolodchenko [5].

The Labrador tea dry extract showed antibacterial activity (inhibition zone 16-25 mm) against *Staphylococcus Aureus* (25923 ATCC), *Staphylococcus Aureus* (6538 ATCC), *Escherichia Coli* (25922 ATCC), *Pseudomonas Aeruginosa* (27853

ATCC) and *Candida Albicans* (885/653 ATCC). The Labrador tea dry extract showed low antibacterial activity (inhibition zone to 10 mm) against *Proteus vulgaris* (4636 NCTC), *Pseudomonas aeruginosa* (9027 ATCC) and *Basillus subtilis* (6633 ATCC).

Anti-inflammatory activity of the dry extract was studied on white mice which weighed 17-22 g, on the model of formalin inflammation. Voltaren was the comparison drug [5].

Labrador tea dry extract has pronounced anti-inflammatory activity (61,05 % of antiexudative effect) in dose 30 mg/kg.

Conclusions

Obtained results of phytochemical and pharmacological study of the labrador tea dry extract showed prospects for further research and the possibility of developing new drugs with antibacterial and anti-inflammatory activity.

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Lysenko O.B.,

*Institute of Environmental Geochemistry of NAS of Ukraine,
Leading Researcher, Candidate of Geological and Mineral Sciences*

Isotopic shifts of biogenic elements in human red blood cells as new promising preclinical method for diagnosis of pathologies of different etiology

Лысенко Ольга Борисовна,

*Институт геохимии окружающей среды НАН Украины,
ведущий научный сотрудник, канд. геолого-минералогических наук*

Изотопные сдвиги биогенных элементов в эритроцитах крови человека как новый перспективный доклинический метод диагностики патологий разной этиологии

В большинстве случаев распределение изотопов в природе контролируется процессами, которые происходят в биосфере. Это привело к необходимости включить в геохимические исследования детальное изучение изотопного состава биологических объектов. В последние десятилетия биологическое фракционирование рассматривается как свойство, присущее всем биохимическим (б/х) реакциям, которые протекают в организмах при жизни и после смерти.

По идеологии, характеру новизны, постановке и методологии данная тема была предложена в 2004-2005 годах. С этого времени было опубликовано более 100 статей, сделано более 50 научных докладов. Впервые на республиканских и международных конференциях предпринята попытка создания теоретического обобщения гео- и б/х экологических знаний, что являются межотраслевыми и имеют прикладное значение для разных областей знаний – от геохимии к клинической медицине.

Систематическое изучение изотопного состава элементов природных соединений привело к накоплению обширного фактического материала, позволившего в реальных чертах проявить картину биогеохимического поведения изотопов. Кроме того, было доказано, что в биологическом фракционировании можно выделить два аспекта. Первый – разделение изотопов в процессе перехода из среды в организм, второй – разделение изотопов в биосистемах самого организма. В этих процессах возникают изотопные эффекты различной природы, причем их вклад в эти процессы неодинаков.

Практически все важные компоненты живого организма содержат изотопы, ядра которых различаются по ряду показателей (масса, энергия, спин, квадрупольный момент и др.). Можно полагать, что сколько-нибудь заметные отклонения в их изотопном составе не могут не сказаться на состоянии функциональной активности организма [1].

Множество разнообразных экспериментальных ситуаций и проблем, с которыми приходится сталкиваться во время биологических и б/х исследований, в которых используются изотопы, обобщены сов. биохимиками Рогинским С.З. и Шнолем С.Э. в монографии «Изотопы в биохимии» к нескольким типам [2]:

1) Массоперенос. К этому типу относятся: а) перемещения, обусловленные самыми разнообразными механизмами, начиная от пассивного переноса; б) перемещения веществ в результате сложных б/х процессов.

2) Объединенные исследования химических, некоторых структурных и физико-химических превращений. К ним относится движение атомов в молекуле: а) разрыв и образование химических связей; б) переход из аморфного в кристаллическое состояние; в) изменение вторичной структуры полимеров (например, денатурация белков) и др.

3) Процессы, не сопровождающиеся ощутимыми изменениями. В эту категорию входят все виды превращений, происходящие в системах в положении равновесия (квазистационарном состоянии), характерном для биологии и биохимии.

4) Процессы, механизм которых не объясняется ни перемещениями, ни изменениями качеств объектов наблюдения. В этих процессах решающую роль играет передача информации в соответствии с обобщенным понятием этого термина, принятым в кибернетике.

5) Проблемы, в которых изотопы применяются для стационарных характеристик объекта исследования. К этой группе относятся исследования: а) химического состава организмов; б) строения активных центров ферментов; в) термодинамических характеристик б/х процессов, цель которых – определение состава и концентрации в положении равновесия.

Основываясь на 4 типах взаимодействий, исследования степени проницаемости клеточных оболочек изотопными методами показало, что в действительности практически все вещества проникают в клетку, при этом с более значительной скоростью проникают углеводы, аминокислоты, минеральные вещества (Na^+ , Cl^+ , K^+ , H_3PO_4 и др.).

При этом возникают изменения структуры молекул метаболита, что может привести к синтезу новых соединений, которые уже не могут нормально участвовать в обмене веществ и тормозят обмен соответствующих природных аналогов, в данном случае аминокислот (АК). Механизм действия антиметаболитов еще не достаточно изучен, однако известно, что они тормозят обмен природных продуктов. В некоторых случаях тормозящее действие снимается одновременным предварительным введением природного метаболита, в других - торможение устранить труднее или оно вообще необратимо.

Предполагается, что антагонистами природных АК могут стать не только метаболиты с измененной структурой молекулы, но и с измененным изотопным соотношением углерода. Таким образом, «утяжеленные АК» (то есть АК с повышенным содержанием ^{13}C) можно рассматривать как антиметаболиты природных АК, что может каким-то образом тормозить обмен веществ.

Авторы данной статьи полагают, что частым случаем клеточного метаболизма, т.е. процессом перераспределения и обмена изотопов в живых организмах является изотопный метаболизм.

Если изотопный обмен, в широком смысле, - это перераспределение изотопов между молекулами, которое не сопровождается явными макроскопическими или физико-химическими процессами, то при изотопном метаболизме перераспределение изотопов (особенно накопление более тяжелого изотопа того или иного биогенного элемента) может изменять интенсивность процесса, что в свою очередь находит отражение в изменении функциональной (биологической) активности организма [3].

Для того, чтобы получить объяснение обнаруженным природным изотопным эффектам, авторы проанализировали те основные изотопные эффекты, которые индуцируют фракционирование изотопов в биологических системах (Таблица 1). Поэтому при описании изотопных элементов авторы останавливались только на тех, которые проявляются в биосистемах.

Как видно из таблицы 1, из изотопных эффектов I рода (или масс-зависящих эффектов) в биосистемах, согласно правилу плейд, проявляют свое влияние фазовый и химические (кинетический и термодинамический) изотопные эффекты [4].

Изотопные эффекты II рода или масс-независимые эффекты, согласно правилу плейд, были обнаружены в радикальных и ион-радикальных химических реакциях [1].

Таблица 1. Классификация изотопных эффектов

Изотопный эффект		
Тип	Разновидность	Проявление в биосистемах
Инерциальный	Гравитационный	Не обнаружен
	Диффузионный	Обнаружен у фотосинтезирующих растений
	Электромагнитный (разделение изотопных ионов в электрическом и магнитном поле)	Наличие эффекта требует дальнейших исследований
Корпускулярно-химический	Фазовый	Установлен авторами в системе «выдыхаемый воздух-кровь»
	Адсорбционный	Пока нет сведений Обнаружен внутримолекулярный изотопный эффект
Химический	Термодинамический	Наличие межмолекулярного изотопного эффекта является предметом дискуссии
	Кинетический	Хорошо изучен для фотосинтезирующих растений
	Фотохимический	Нет сведений
Ядерно-химический	Туннельный	Нет сведений
	Ядерно-спиновой	Обнаружен в биосистемах

Общепринято считать, что здоровье человека определяется в значительной степени экзогенными факторами, а именно условиями окружающей среды в течение всех периодов его онтогенетического развития. Рецепция экзогенных факторов осуществляется с помощью формирования соответствующей инфор-

мации в форме изменений состава соединений, которые принимают участие в метаболизме.

В организме существуют два четких источника химической информации - макромолекулы (нуклеиновые кислоты и белки) и микромолекулы (аминокислоты, липиды, сахара), которые хорошо изучены и формируют основу современных исследований в биохимии, молекулярной биологии, химической биологии и в последнее время в геномике, протеомике и биоинформатике. Общеизвестно, что характеристики состояния генома, который несет полную программу развития организма, играют и будут играть все более значительную роль в диагностике многих болезней. Исследования протеома, который является множеством синтезированных в данный момент времени протеинов, могут помочь установить недавние события в окружающей среде и их влияние на здоровье человека.

Кроме отмеченных выше двух источников химической информации, есть основания допустить существование и третьего, очень существенного по своему значению. Это – изотопные соотношения биогенных элементов, относящихся как к микро- так и к макромолекулам, и обладающими многими общими характеристиками.

Внутримолекулярные соотношения изотопов содержат информацию (память), заложенную в молекулу при ее «рождении», т.е. это память о химической эволюции вещества как о совокупности огромного количества химических реакций. По этой памяти, по изотопным аномалиям можно реконструировать пути химической эволюции, проследить происхождение веществ в природе [1].

Среди общего количества имеющихся на сегодняшний момент о биологическом фракционировании изотопов биогенных элементов наиболее часто встречаются работы по изучению фракционирования изотопов органогенных элементов (C, H, N, O), что обусловлено их подавляющим количеством в составе всех живых организмов на Земле. Такая распространенность связана с их способностью легко образовывать ковалентные связи посредством спаривания электронов и реагировать друг с другом, заполняя свои внешние электронные оболочки. Кроме того, среди элементов, способных образовывать ковалентные связи, они являются самыми легкими. А поскольку прочность ковалентной связи обратно пропорциональна атомным массам связанных с ее помощью атомов,

именно им отведена роль быть структурными элементами всех биогенных молекул [4].

Начиная с 2000 г., в Институте геохимии окружающей среды НАН Украины совместно с Институтом геронтологии им. Д.Ф. Чеботарева и Научным центром радиационной медицины НАН Украины были начаты исследования по изучению и определению присущих (внутренних) изотопных соотношений некоторых биогенных элементов (в частности, углерода, магния, водорода, железа) в тканях человека.



Рисунок 1. Изотопный состав некоторых тканей и органов человека

Конечной целью наших исследований является выявление и изучение зависимости между присущими (внутренними) соотношениями стабильных изотопов этих элементов в тканях человека и его функциональным состоянием. Для проверки этой гипотезы в течение более 10 лет проводятся системные исследования в этом направлении. Каждый год для обследования подбирались разные возрастные группы (по 80 чел.). Полученные результаты представлены на Рис. 2, где сведены значения $\delta^{13}\text{C}$ для разных возрастных групп здоровых людей, больных гипертонической болезнью, ишемической болезнью сердца и язвенной болезнью.

Масс-спектрометрические исследования зафиксировали, во-первых, наличие у больных изотопный сдвиг углерода в сторону увеличения содержания тяжелого изотопа. Во-вторых, было установлено, что величина изотопного сдвига углерода прямо пропорциональна степени тяжести заболевания.

Состояние здоровья	Возрастная группа (лет)	Соотношение стабильных изотопов углерода (‰)																																							
		20,1	20,2	20,3	20,4	20,5	20,6	20,7	20,8	20,9	21,0	21,1	21,2	21,3	21,4	21,5	21,6	21,7	21,8	21,9	22,0	22,1	22,2	22,3	22,4	22,5	22,6	22,7	22,8	22,9	23,0	23,1	23,2	23,3	23,4	23,5	23,6	23,7	23,8		
Здоровье	25-36																																								
Патология разной этиологии	25-40																																								
Здоровье	62-68																																								
Патология разной этиологии	52-65																																								
Здоровье	72-79																																								
Патология разной этиологии	71-79																																								
Здоровье	25-36																																								
Лучевая болезнь	25-40																																								
Здоровье	25-36																																								
Лейкемия	25-40																																								

Рисунок 2. Изотопное содержание углерода в эритроцитах крови здоровых людей и больных с разными заболеваниями

В течение многих лет, совместно с Научным центром радиационной медицины АМН Украины, проводятся обследования участников ликвидации последствий аварии на ЧАЭС разного возраста с высокими поглощенными дозами в диапазоне от 0.5 до 5.0 Гр, страдающими комплексной соматической или онкологической патологией (до 100 чел.); лиц, пострадавших в результате аварии на ЧАЭС разного возраста с низкими поглощенными дозами в диапазоне от 0.01 до 0.49 Гр, страдающих этими же патологиями (до 100 чел.), а также практически здоровых людей разного возраста (до 50 чел.).

Установлено, что биологические системы бывают очень чувствительными к ничтожно малым количествам элементов, особенно это относится к так называемым «микроэлементам» (Co, Ni, Mo, Zn и другим металлам, по-видимому, всегда входящим в состав активных центров ферментов). Появление или исчезновение таких элементов в количестве даже нескольких атомов на клетку может вызвать существенные изменения в организме при определенной локализации элемента. Предположение о том, что аналогично ведет себя и появление или исчезновение изотопных сдвигов этих элементов при определенной локализации того или другого изотопа требует серьезного теоретического обоснования и тщательно поставленных экспериментальных исследований, которые по-прежнему у нас проводятся.

Принципиальным отличием наших исследований от существующих является положение о том, что неизменность клеточного гомеостаза в норме определяется изотопным постоянством биогенных элементов, а нарушение этого постоянства происходит при различного рода патологиях.

Систематизированное обобщение существующих информационных и полученных экспериментальных данных приводит к выводу о возможной связи изотопного метаболизма с условиями протекания биосинтеза. Это может явиться основой для экологической оценки среды обитания организмов, а возможно, и медико-клинической диагностики патологий разных органов человека.

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Roy Irina,

State Institution "Institute of Traumatology and Orthopedics NAMS of Ukraine", Professor, Doctor of Medical Sciences,

Rusanov Andrej,

State Institution "Institute of Traumatology and Orthopedics NAMS of Ukraine", Department of Rehabilitation,

Rusanova Olga,

National University of Physical Education and Sport of Ukraine, Candidate of Science in Physical Education and Sport

Approaches to creation program for reconstruction rehabilitation of patients after anterior cruciate ligament

Рой Ірина,

Державна установа «Інститут травматології і ортопедії НАМН України», професор, д. мед. н.,

Русанов Андрій,

Державна установа «Інститут травматології і ортопедії НАМН України», відділення реабілітації,

Русанова Ольга,

Національний університет фізичного виховання і спорту України, к. фіз. вих.

Підходи до створення програми реабілітації хворих після реконструкції передньої хрестоподібної зв'язки

Постановка наукової проблеми та її значення. В останні роки в Україні виконується все більше артроскопічних оперативних втручань з приводу внутрішньо суглобових ушкоджень колінного суглоба, що пов'язане як з підвищеним травматизмом, через більш широке залучення населення до активного способу життя та внаслідок антитерористичних заходів в Україні, так і з впровадженням сучасних методів візуалізації, що значно спрощує діагностику цих ушкоджень.

Найбільш швидкими темпами в останні роки зростала кількість оперативних втручань з приводу ушкодження передньої хрестоподібної зв'язки (ПХЗ). Так, лише в ДУ «ІТО НАМН України» їхня кількість зросла в 4 рази.

В основі більшості функціональних порушень, що виявляється у хворих після пластики ПХЗ, знаходяться місцеві прояви відповідної реакції організму на патологічний процес та зниження опороспроможності кінцівки, що викликає зміни в тканинах суглоба – формування рубців, дегенерацію суглобового хряща, гіпотрофію м'язів. Слід зазначити також, що весь післяопераційний реабілітаційний період йде на тлі етапних процесів інкорпорації трансплантата в кісткових тунелях та його перебудови (лігаментизації). Саме стадійність відновлення трансплантату є основою для виділення різних фаз реабілітації, розділених на тижні, що спрощує задачу динамічного спостереження за прооперованими хворими в процесі реабілітаційного лікування.

Мета дослідження. Теоретично обґрунтувати підходи до створення програми реабілітації хворих після реконструкції передньої хрестоподібної зв'язки.

Для досягнення поставленої мети використовувалися наступні методи дослідження: аналіз та узагальнення даних літературних джерел та практичного досвіду.

Виклад основного матеріалу й обґрунтування отриманих результатів дослідження. Керуючись власним досвідом та на основі існуючих програм було розроблено базову реабілітаційну програму для хворих після артроскопічної реконструкції ПХЗ у залежності від способу фіксації трансплантата та термінів після оперативного втручання. Ми проаналізували дуже повільні програми Paulos L. та Noyes F.R. (1991) тривалістю 60 тижнів, з дозволом повного осьового навантаження після 16 тижнів; програми прискореної реабілітації Shelbourn K. та Nitz P. (1990) та більш помірковані програми Risberg M.A. тривалістю 6 місяців [1-3].

На основі попереднього досвіду реабілітації хворих після артроскопічних ушкоджень ПХЗ та проведеного аналізу існуючих програм була розроблена власна програма тривалістю 6 місяців (рис. 1).

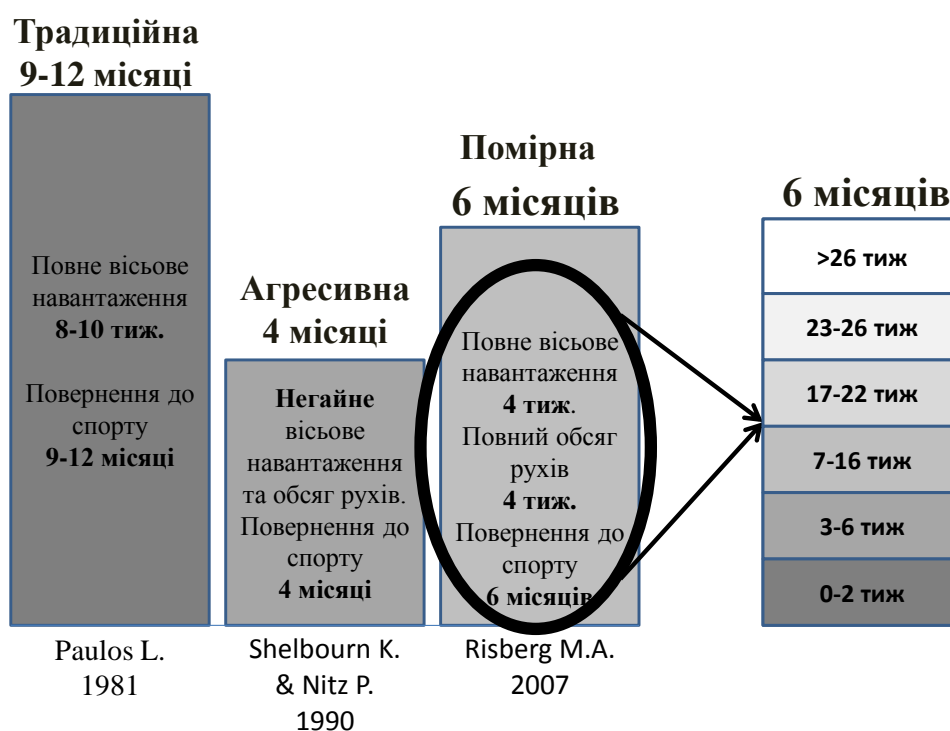


Рис. 1 - Порівняльна характеристика програм за їхньою тривалістю

Запропонована власна програма включає періоди передопераційної підготовки, чотири обов'язкових періоди та п'ятий для професійних спортсменів. Кожний з періодів має відповідний відновний руховий режим, завдання та критерії переходу до наступного рівня навантажень.

Передопераційний період є обов'язковим для хворих із запальними явищами, контрактурами в колінному суглобі, при значній гіпотрофії м'язів. Його тривалість зазвичай 10-15 днів, яка може бути значно подовжена, що залежить від функціонального стану колінного суглоба. В деяких клініках світу передопераційна реабілітація триває довше і становить 6 тижнів.

Ранній післяопераційний період (Ia) – триває весь час перебування в хірургічному стаціонарі – в середньому 1-2 тижні. Цей період співпадає з часом заживлення післяопераційної рани та ділянок артроскопічних портів. Протягом перших 3-х днів увага зосереджується на стані післяопераційної рани, в подальшому головна мета – захист трансплантата. Режим щадний. Програма залежить переважно від використаних фіксаторів.

Ранній післяопераційний період (Iб) – дозованого осьового навантаження – закінчується після 6-го тижня, коли хворий починає ходити з повним осьовим

навантаженням на оперовану кінцівку. Режим щадний та щадно-тренуючий, продовжує залежати від використаних фіксаторів. В цей час проходить інтеграція трансплантата до кістки, що зменшує вплив фіксації на подальшу реабілітацію.

Пізній післяопераційний період (II) – повного осьового навантаження – закінчується в 16 тижнів. Режим тренуючий, залежить від типу трансплантата. В кінці періоду хворий може ходити, присідати, починає бігати. Реабілітація може бути закінчена для осіб, робота яких не пов'язана зі значними фізичними навантаженнями.

Період функціонального відновлення (III) – триває до 22 тижня. Навантаження продовжують залежати від типу фіксації трансплантата. Головним в цей період є досягнення симетричності між кінцівками. Хворий може переходити до значних навантажень.

Період підвищених навантажень (IV) триває до 26 тижня. Режим тренуючий. Залежить від функціонального стану опорно-рухового апарата. Головним в цей період є можливість повернення до спортивних занять.

Крім того, було введено додатковий п'ятий період – період повернення до спортивних занять (V) для спортсменів, що займаються спортом професійно. Це дає змогу повністю показати можливості реабілітаційної допомоги цим хворим.

Перспективи подальших досліджень у даному напрямку. Дослідження ефективності розробленої програми реабілітації.

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Morjakina Svetlana Vasilevna,
the Chechen State University,
the Senior Lecturer, Cand. Biol. Sci., Biologo-Chemical Faculty,
Anzorov Vaha Ashadovich,
the Chechen State University,
the Professor, a Dr. Sci. Biol., Biologo-Chemical Faculty,
Abumuslimov Saidhamzat Saidmagomedovich,
the Chechen State University, the Senior Lecturer,
Cand. Biol. Sci., Biologo-Chemical Faculty

**Change of indicators of acoustical sensitivity
at intellectual and physical activity at the students
different to gender signs**

Морякина Светлана Васильевна,
ФГБОУ ВО «Чеченский государственный университет», доцент,
кандидат биологических наук, биолого-химический факультет,
Анзорев Ваха Асхадович,
ФГБОУ ВО «Чеченский государственный университет», профессор,
доктор биологических наук, биолого-химический факультет,
Абумуслимов Саидхамзат Саидмагомедович,
ФГБОУ ВО «Чеченский государственный университет», доцент,
кандидат биологических наук, биолого-химический факультет

**Изменение показателей слуховой чувствительности
при умственной и физической нагрузке у студентов,
отличающихся по гендерным признакам**

Одной из наиболее актуальных проблем современной молодежи является снижение слухового восприятия, и именно студенческая молодежь в наши дни составляет большую группу риска по тугоухости. А как известно, слух для человека является биологическим и социальным фактором речевого общения.

Речевые сигналы ограничены частотным диапазоном 1000–10000 Гц и интенсивностью от 50 до 80 дБ [1].

Из литературных источников было установлено, что чрезмерная умственная и физическая нагрузка могут оказывать неблагоприятное влияние на функциональное состояние слухового анализатора. Так, например, при заболеваниях звуковоспринимающего аппарата имеется резкое укорочение костной проводимости, а при заболеваниях звукопроводящего – относительно меньше [2, 3].

Целью настоящей работы является изучение функционального состояния слуховой системы у студентов разного пола при воздушной и костной проводимости звуковых сигналов.


Для выполнения поставленной цели решались следующие задачи:

1. Сопоставление показателей воздушной и костной проводимости у девушек и юношей 2-х, 4-х и 5-х курсов. Установление уровня снижения слуха.

Для воздушной проводимости звука использовались следующие частоты: 125, 250, 500, 750, 1000, 1500, 2000, 3000, 4000, 6000, 8000 Гц. Для костной проводимости: 250, 500, 750, 1000, 1500, 2000, 3000, 4000 Гц.

2. Определение наличия кондуктивного компонента (костно-воздушного интервала) на каждой из исследуемых частот.

3. Анализ реакции слуховой системы при воздушной проводимости (частоты: 125, 500, 2000, 4000, 6000 Гц) на дозированную физическую нагрузку в виде пробы Мартине (20 приседаний за одну минуту для девушек и 30 – для юношей). В эксперименте участвовали: 21 девушка и 7 юношей четвертого курса.

Исследования проводились на биолого-химическом факультете, лабораторный блок кафедры «Физиология и анатомия человека и животных» и на базе центра коллективного пользования научным и испытательным оборудованием с апреля по май и с октября по  ноябрь 2014 года.

В эксперименте приняли участие 71 человек (из них 58 девушек и 13 юношей) биолого-химического факультета 2-го (16 девушек и 3 юноши), 4-го (23 девушки и 7 юношей), и 5-го курсов (19 девушек и 3 юноши) очного и очно-заочного отделения, направление подготовки «Биология», профиль «Физиология» и «Общая биология», из которых были созданы три группы. Каждая группа делилась на две подгруппы по гендерным признакам. У студентов определяли

остроту слуха при воздушной и костной проводимости по окончании учебных занятий.

Определение слуховой чувствительности проводили с помощью автоматизированного аудиометра АА-02.

В первой серии экспериментов мы рассмотрели показатели воздушной и костной проводимости звуков у девушек и юношей всех курсов.

Со стороны воздушной проводимости звуков было установлено, что острота слуха оказалась выше у студенток старшего пятого курса и у студентов четвертого курса. Возможно, это связано с адаптацией к учебным нагрузкам.

Основа процесса адаптации – изменение структуры организма в ходе жизнедеятельности в соответствии с получаемой информацией из внешней среды. Поэтому учебная нагрузка может рассматриваться как источник информации, стимулирующий развитие адаптационных процессов [4].

Кроме того, мы обнаружили критический уровень снижения слуха (выше 20 дБ) у студенток и студентов второго курса (девушки – частоты 500 и 1000 герц; юноши – частоты 250, 500 и 750 герц) и студенток четвертого и пятого курсов (частоты 250, 500 герц – 4 курс и 500 Гц – пятый курс) на уровне средних частот для правого уха (табл. 1).

Таблица 1. Сопоставление остроты слуха при воздушной проводимости у девушек и юношей всех курсов

Частота в Гц	Пол	Слуховые пороги, дБ (M ± m)					
		Второй курс		Четвертый курс		Пятый курс	
		Левое ухо (AS)	Правое ухо (AD)	Левое ухо (AS)	Правое ухо (AD)	Левое ухо (AS)	Правое ухо (AD)
125	Ж	13,43±7,899	17,81±9,656	12,17±8,094	19,34±9,451	11,05±6,142	11,05±8,592*
	М	11,66±2,887	16,66±10,408	12,85±8,092	6,42±3,780*	11,66±7,638	11,25±6,292
250	Ж	16,25±8,660	20,00±8,165	18,26±8,476	24,34±11,412	13,68±8,635	17,63±6,534
	М	10,00±5,000	21,66±7,638	14,28±9,759	13,57±6,268	13,33±5,774	16,66±2,887
500	Ж	19,37±9,639	20,31±8,845	17,82±9,750	23,04±11,154	16,05±9,366	20,78±9,997
	М	11,66±2,882	25,00±10,000	17,85±7,559	12,14±7,559*	13,33±5,774	18,33±17,559
750	Ж	14,37±7,932	18,75±8,66	15,43±8,649	19,13±16,001	15,52±8,803	16,31±10,651
	М	13,33±5,774	21,66±7,638	10,71±8,864	7,85±4,880***	20,00±5,000	11,66±12,583
1000	Ж	14,37±8,732	21,87±17,877	15,65±11,804	17,60±9,998	16,57±9,726	17,85±13,876
	М	8,33±7,638	15,00±5,000	12,14±5,669	7,14±5,669	16,66±5,774	18,33±2,887
1500	Ж	11,87±8,342	17,5±11,255	14,13±9,960	17,82±11,854	10,52±7,434	14,47±7,618
	М	6,66±7,638	10,00±5,000	9,28±4,499	3,57±4,756	15,00±5,000	13,33±5,774
2000	Ж	9,37±7,27	12,18±7,521	8,91±7,223	11,30±8,008	7,97±6,21	8,94±7,92

	М	5,00±5,000	8,33±2,887	7,14±5,669	5,00±5,000	16,66±10,408	11,66±10,408
3000	Ж	7,18±6,316	9,06±6,884	6,52±6,112	10,00±10,000	3,68±4,667	3,68±4,956**
	М	10,00±8,660	5,00±5,000	9,28±8,381	6,42±4,756	15,00±8,660	3,33±2,887
4000	Ж	5,31±5,313	9,68±9,031	8,09±6,978	10,87±8,209	5,78±4,171	4,21±5,073*
	М	13,33±18,930	13,33±11,54	7,14±4,880	9,28±6,726	8,33±10,408	6,66±2,887
6000	Ж	10,62±6,292	12,81±8,938	14,56±11,069	16,30±17,335	7,89±7,965	9,47±9,985
	М	10,00±5,000	6,66±2,887	5,00±4,082	6,42±6,268	10,00±10,00	6,66±11,547
8000	Ж	13,43±7,004	15,31±9,911	15,21±12,011	19,21±15,846	12,10±10,582	11,84±9,008
	М	6,66±2,887	20,00±5,000	14,28±7,868	12,14±3,934**	11,66±12,583	16,66±16,073
Примечание: *P <0,05; **P <0,02; ***P <0,001							

В данном случае речь идет о нарушении звукопроводящей системы, вызванной повреждением наружного или среднего уха. Снижение слуха в низкочастотном диапазоне может наблюдаться при перенесенных простудных заболеваниях, при выраженных аденоидах, аллергическом и вазомоторном рините. Это могут быть также различные воспалительные процессы наружного слухового прохода и среднего уха.

Для костной проводимости наиболее высокие пороги слуховой чувствительности и, соответственно, более низкая острота слуха, были отмечены у девушек второго курса, для средних частот 1500 герц, у юношей – 500, 1000, 1500 и 4000 герц.

Хуже всего студентками четвертого курса воспринимались средние частоты – 1000 и 1500 герц. У студентов четвертого курса нарушений слуха мы не обнаружили.

Студенты пятого курса показали наихудшие результаты практически на всех частотах: 250, 1000, 1500 и 2000 герц (низкая острота слуха), особенно для левого уха. У девушек нарушений мы не обнаружили (табл. 2).

Таблица 2. Динамика изменений слуховой чувствительности при костной проводимости у девушек и юношей всех курсов

Частота в Гц	пол	Слуховые пороги, дБ (М ± m)					
		Второй курс		Четвертый курс		Пятый курс	
		Левое ухо (AS)	Правое ухо (AD)	Левое ухо (AS)	Правое ухо (AD)	Левое ухо (AS)	Правое ухо (AD)
250	Ж	5,31±6,183	5,93±7,122	5,00±8,394	7,17±8,094	8,42±9,287	7,89±7,133
	М	13,33±15,275	6,66±11,547	2,85±7,559	4,28±7,868*	13,33±5,774	11,66±5,774
500	Ж	9,68±10,403	7,81±7,952	8,04±9,138	6,95±8,221	7,10±6,935	7,5±8,618

	М	13,33±18,93	20,0±18,028	0,71±1,89	2,85±7,559*	8,33±5,774	8,33±2,887
750	Ж	6,87±7,500	4,37±6,292	7,17±7,808	7,82±8,233	8,15±7,493	3,15±5,058
	М	8,33±10,48	11,66±7,638	0,0±0,0	2,85±4,88	8,33±10,408	8,33±10,408
1000	Ж	9,37±7,500	7,81±6,824	11,30±10,137	10,65±9,571	9,21±9,016	7,10±7,512
	М	20,0±20,0	15,00±8,660	4,28±7,868	5,00±9,574	18,33±2,887	16,66±10,408
1500	Ж	11,56±11,65	7,10±7,719	10,65±11,412	9,56±9,643	8,94±7,742	7,89±8,219
	М	16,66±15,275	15,00±8,660	1,42±3,78***	4,28±7,868	11,66±2,887	8,33±10,408
2000	Ж	7,81±7,521	8,12±8,139	8,04±9,383	8,04±9,970	3,94±4,882	6,31±8,307
	М	5,00±5,000	10,00±5,0	0,0±0,0	3,57±7,480	11,66±20,207	3,33±5,774
3000	Ж	2,50±4,472	3,12±6,021	2,39±3,652	6,30±7,419	0,52±2,294	1,57±4,100
	М	3,33±2,887	5,0±8,66	0,0±0,0	0,71±1,89	0,0±0,0****	0,0±0,0
4000	Ж	5,93±7,576	5,93±6,884	7,17±8,233	8,91±8,655	5,26±5,13	5,26±7,35
	М	11,66±12,583	13,33±12,583	0,71±1,89**	2,14±5,66*	1,66±2,8982	0,0±0,0
Примечание: *P <0,05; **P <0,02; ***P <0,001							

Возможно, установленные нарушения связаны с повреждением звуко-воспринимающей системы левого уха. Причиной может быть слишком активное использование мобильных телефонов, которые обычно прикладывают к левому уху. Это создает шумовую нагрузку на фоторецепторы. Причиной также может быть слишком частое прослушивание музыки через наушники.

Во второй серии экспериментов мы определяли разность между значениями порогов слышимости, определенными при воздушном (В) и костном (К) звукопроведении, которая отражается на аудиограмме в виде костно-воздушного интервала.

В норме пороги воздушного и костного звукопроведения совпадают и находятся в пределах 5-10 дБ.

Таблица 3. Разность между значениями порогов слышимости, определенными при воздушном и костном звукопроведении у девушек и юношей всех курсов

Частота в Гц	Проводимость	Слуховые пороги, дБ (М ± m)											
		Второй курс				Четвертый курс				Пятый курс			
		Левое ухо (AS)		Правое ухо (AD)		Левое ухо (AS)		Правое ухо (AD)		Левое ухо (AS)		Правое ухо (AD)	
		Ж	М	Ж	М	Ж	М	Ж	М	Ж	М	Ж	М
250	В	16,25	10,00	20,00	21,66	18,26	14,28	24,34	13,57	13,68	13,33	17,63	16,66
	К	5,31	13,33	5,93	6,66	5,00	2,85	7,17	4,28	8,42	13,33	7,89	11,66
	Разница	10,94	3,33	14,07	15	13,26	11,43	17,2	9,29	5,26	0	9,94	5

500	В	19,37	11,66	20,31	25,00	17,82	17,85	23,04	12,14	16,05	13,33	20,78	18,33
	К	9,68	13,33	7,81	20,0	8,04	0,71	6,95	2,85	7,10	8,33	7,5	8,33
	Разница	9,69	1,67	12,5	5	9,78	17,14	16,09	9,29	8,95	4,5	13,28	10
750	В	14,37	13,33	18,75	21,66	15,43	10,71	19,13	7,85	15,52	20,00	16,31	11,66
	К	6,87	8,33	4,37	11,66	7,17	0,0	7,82	2,85	8,15	8,33	3,15	8,33
	Разница	7,5	5	14,38	10	8,26	10,71	11,31	5	7,37	11,67	13,16	3,33
1000	В	14,37	8,33	21,87	15,00	15,65	12,14	17,60	7,14	16,57	16,66	17,85	18,33
	К	9,37	20,0	7,81	15,00	11,30	4,28	10,65	5,00	9,21	18,33	7,10	16,66
	Разница	5	11,67	14,06	0	4,35	7,86	6,95	2,14	7,36	1,67	10,75	1,67
1500	В	11,87	6,66	17,5	10,00	14,13	9,28	17,82	3,57	10,52	15,00	14,47	13,33
	К	11,56	16,66	7,10	15,00	10,65	1,42	9,56	4,28	8,94	11,66	7,89	8,33
	Разница	0,31	10	10,4	5	3,48	7,86	8,26	0,71	1,58	3,34	6,58	5
2000	В	9,37	5,00	12,18	8,33	8,91	7,14	11,30	5,00	7,97	16,66	8,94	11,66
	К	7,81	5,00	8,12	10,00	8,04	0,0	8,04	3,57	3,94	11,66	6,31	3,33
	Разница	1,56	0	4,06	1,67	0,87	7,14	3,26	1,43	4,03	5	2,63	8,33
3000	В	7,18	10,00	9,06	5,00	6,52	9,28	10,00	6,42	3,68	8,33	3,68	3,33
	К	2,50	3,33	3,12	5,00	2,39	0,0	6,30	0,71	0,52	1,66	1,57	0,0
	Разница	4,68	6,67	5,94	0	4,13	9,28	3,7	5,71	3,16	6,67	2,11	3,33
4000	В	5,31	13,33	9,68	13,33	8,09	7,14	10,87	9,28	5,78	15,00	4,21	6,66
	К	5,93	11,66	5,93	13,33	7,17	0,71	8,91	2,14	5,26	0,0	5,26	0,0
	Разница	0,62	1,67	3,75	0	0,92	5,72	1,09	7,14	0,52	15,0	1,05	6,66

Нами было установлено, что у девушек всех трех курсов костно-воздушный интервал был повышен на низких и средних частотах (250, 500, 750, 1000 герц – 2-й курс, 250, 500, 750 Гц – 4-й курс и 500, 750 Гц – 5-й курс) правого уха (особенно у девушек четвертого курса). У юношей также были установлены выше изложенные изменения, но у четвертого и пятого курсов они были характерны для левого уха, а у второго курса – как для правого, так и для левого. Возможно, в данном случае имеет место перенесенное воспаление среднего уха (отит), которое привело к нарушению звукопроводящей системы слуха (кондуктивные нарушения).

В нашем случае пока не идет речь о кондуктивной тугоухости, так как разница между значениями порогов слышимости, определенными при воздушном и костном звукопроведении, не превышает 17,2 дБ (табл. 3). А из литературных источников нам известно, что в случае патологии среднего уха пороги повышаются на низких частотах на 20-40 дБ [5].

У студентов пятого курса также было отмечено повышение костно-воздушного интервала для левого уха на высокой частоте 4000 герц до 15 дБ.

В данном случае имеют место нейросенсорные нарушения при поражении звуковоспринимающего аппарата. Причиной может быть воздействие постоянного шума на орган слуха. Возможно, эти студенты злоупотребляют громкой музыкой, особенно через наушники плееров, или постоянно «висят» на телефоне.

В третьей серии экспериментов мы решили проверить, как будет реагировать слуховой анализатор на дозированную физическую нагрузку.

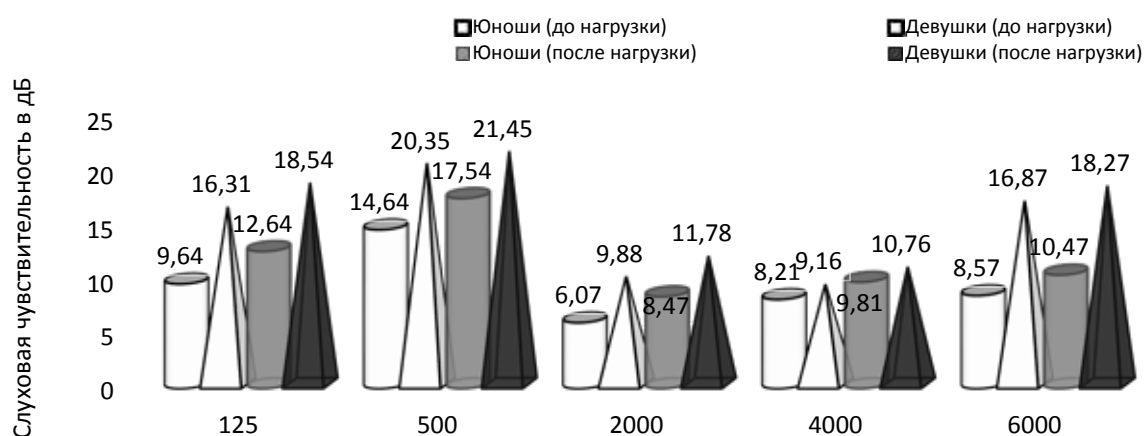


Рис. 1. Порог слышимости у юношей и девушек в зависимости от степени физической нагрузки

Был проведен анализ данных воздушной проводимости звука для разных частот (низкие, средние и высокие) до и после выполнения нагрузки. За основу брался усредненный показатель остроты слуха для обеих ушей.

При подаче звука разной частоты мы обратили внимание, что у испытуемых юношей и девушек после выполнения физической нагрузки происходит ухудшение проводимости звуков, повышается порог слышимости, особенно на низких частотах (250 и 500 герц) у юношей (рис. 1).

Следовательно, любая физическая нагрузка снижает проводимость и ухудшает порог чувствительности и возбудимости рецепторного аппарата слухового анализатора. Этот факт можно объяснить снижением функциональной подвижности слуховых зон коры.

ВЫВОДЫ

1. Слуховая чувствительность при воздушной проводимости оказалась выше у студенток старшего пятого курса и у студентов четвертого курса. Возможно, это связано с адаптацией к учебным нагрузкам. Мы также обнаружили

критический уровень снижения слуха (выше 20 дБ) у студенток и студентов второго курса, студенток четвертого курса и студенток пятого курса на уровне средних частот для правого уха.

2. При костной проводимости наиболее высокие пороги слуховой чувствительности и, соответственно, более низкая острота слуха, были отмечены у девушек второго курса, для средних частот 1500 герц, у юношей – 500, 1000, 1500 и 4000 герц. Хуже всего студентками четвертого курса воспринимались средние частоты – 1000 и 1500 герц. У студентов четвертого курса нарушений слуха мы не обнаружили. Студенты пятого курса показали наихудшие результаты практически на всех частотах: 250, 1000, 1500 и 2000 герц (низкая острота слуха), особенно для левого уха. У девушек пятого курса нарушений мы не обнаружили.

3. У девушек всех трех курсов костно-воздушный интервал был повышен на низких и средних частотах (250, 500, 750, 1000 герц) правого уха (особенно у девушек четвертого курса). У юношей также были установлены выше изложенные изменения, но у четвертого и пятого курсов они были характерны для левого уха, а у второго курса – как для правого, так и для левого. У студентов пятого курса также было отмечено повышение костно-воздушного интервала для левого уха на высокой частоте 4000 герц до 15 дБ.

4. Любая физическая нагрузка снижает проводимость и ухудшает порог чувствительности рецептивного аппарата слухового анализатора, причем глубина сдвига тесно связана с характером и интенсивностью выполняемой работы.

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Ilyina Tetyana,

*National University of Pharmacy, Kharkiv, Ukraine,
Associate Professor, Doctor of Pharmaceutical Sciences*

The Sedative Activity of the Dry Extract from Galium verum L.

INTRODUCTION

The genus *Galium* L. family *Rubiaceae* Juss. in the flora of Ukraine is represented by about 70 species^{1,2}. The vast majority of the plants are not officinal species, but are widely used in folk medicine of Ukraine, which lays ground for their integrated pharmacognostic study. The only officinal species on the list is Lady's bedstraw or Yellow bedstraw (*Galium verum* L.), a perennial herb spread throughout the territory of Ukraine, which is a constituent of the Ukrainian domestic combined herbal remedy "Tazalok™"^{3,4}.

This plant contains several biologically active compound groups: alizarin and derivatives of anthracene in the rhizomes and roots; essential oil, phenolcarbonic acids, coumarins, flavonoids and iridoids in the herb^{5,6}.

During the study of the genus Bedstraw (*Galium* L.) species, we have developed a technology for producing dry extract from Lady's bedstraw *Galium verum* L. herb.

The subject matter of the current research is to investigate the dry extract from Lady's bedstraw herb for sedative activity.

MATERIALS AND METHODS

Obtaining the dry extract

The object of the study was *Galium verum* dry extract which was prepared by serial percolation method using 70 % ethanol. The resulting extract was combined and evaporated to 1/3 of the initial volume. The concentrate received was treated with chloroform to remove lipophilic compounds. The purified extract was vacuum-evaporated to dry residue and grinded to powder state. The yield of the dry extract was 13.9 % of the dry herb.

Sedative Activity Screening

Taking into consideration the fact that the herb of different species of bedstraw is used in folk medicine as a sedative medicine at neurasthenia and depression, the influence of dry extract on behavioral reactions in the "open-field" test was studied⁷.

Treatment Groups

The test subjects (mice) were randomly divided into 3 groups containing 8 animals in each group:

1. group 1 – control, received distilled water;
2. group 2 – received extract of *Galium verum* herb (50 mg/kg);
3. group 3 – received extract of *Galium verum* herb (100 mg/kg);

Dose Administration

The aqueous solution of dry extract was administered intragastrically using an oral feeding needle in a preventive mode for a continuous period of five days (the last feeding being over 30 minutes before the test). The effect of aqueous solution of dry extract on spontaneous activity was evaluated in mice using open field methodology. The mice were placed individually in the apparatus subsequent to administering and the ambulation was recorded for 3 minutes. The auto-track is an advanced automated Open Field Activity Monitor system using the technology to quantify locomotor activity and trace the animal's path for behavioural analysis. The automatic system senses motion with a grid of infrared photocells placed around a special arena. Vertical motion is detected by a second array of photocells placed above the animal. The simultaneous interruption of beams along the horizontal axis provides coordinates that identify animal location. Vertical motion is scored and stored with horizontal position data. Autotrack records these coordinates for further playback and analysis. The investigation of stereotyped motor activity has elucidated the role of various brain mechanisms in the behavior of animals and humans.

Motor Coordination Screening

Rotarod method was used for screening the motor coordination.⁷ This test is used to evaluate the activity of drugs interfering with motor coordination by assessing the ability of mice to remain on an accelerating revolving rod. The rotating rod is divided into four lanes separated by screens. The mouse must walk forward to balance on the rotating center bar. This forced motor activity has subsequently been used by many investigators. Only those animals which demonstrate their ability to remain on the revolving rod for at least 30 seconds are used for the test. The length of time that

a given animal stays on this rotating rod is a measure of their balance, coordination, physical condition and motor planning.

The animals were tested during the daylight period and observed in a closed room at constant temperature by the screening methods mentioned above.

All animals used in the experiments were kept under standard vivarium conditions of Central Scientific Research Laboratory (CSRL) of National University of Pharmacy of Ukraine in accordance with sanitary norms and principles of the European Convention for the Protection of Laboratory Animals (Strasbourg, 1986).

Statistical analysis was performed using variation statistics methods. Reliability of intergroup differences was determined by Student t-test⁸.

Phytochemical screening

HPLC analysis has been used to identify the phenolic compounds in the dry extract⁹.

The dry extract was dissolved in 90 % methanol and filtered through a teflon membrane filter having a pore size of 0.45 μm for analysis. Identification of phenolic compounds was performed by retention time and comparison to spectral characteristics of the standard samples.

The analysis was performed on the Agilent Technologies chromatograph (model 1100) equipped with a flowing vacuum degasser G1379A, 4-channel gradient pump low pressure G13111A, G1313A automatic injector, column oven G13116A, diode detector G1316A; chromatographic column size 2.1×150 mm filled with sorbent grained 3.5 microns ZORBAX-SB C-18.

Chromatographic conditions: flow rate of mobile phase is 0.25 ml/min; operating pressure of 240-300 kPa eluent; column oven temperature of 35 °C; 2 μl sample volume; a mixture solution of 0.1 % phosphoric acid and methanol with increasing concentration of the latter in a mixture from 10 % to 100 % were used as mobile phase. Detection parameters: measurement scale 1.0; scan time of 0.5 s; options removing spectrum – each peak 190-600 nm; wavelength nm: 280, 313, 350, 371, 254.

RESULTS AND DISCUSSION

A set of screening tests was conducted over a period of six days to assess the effects of a dry extract of *Galium verum* on the central nervous system at a dose of 50 and 100 mg/kg per orally. The study demonstrates that in the open field test, there is a significant trend ($p > 0.05$) of decreasing the locomotor activity by 22.33 % at a

dose of 50 mg/kg, by 20.21 % at a dose of 100 mg/kg. The results indicate a distinctive sedative activity. At a dose of 50 mg/kg orient–research activity decreased by 22.48 %, including holes – by 12.31 %, racks – 59.09 %; at a dose of 100 mg/kg – of decreased by 27.16 %, including holes – by 23.34 %, racks – 40.91 %.

Vegetative maintenance of emotional responses at a dose of 50 mg/kg decreased by 29.91 %, including boluses – by 44.25 %, grooming – by 14.77 %; at a dose of 100 mg/kg – increased by 11.21 %, including boluses increasing by 22.12 %, the grooming remains unchanged. The amount of urination in both cases remains unchanged.

It was shown that the dry extract displays a marked inhibiting effect on all types of activities without noticeably affecting, if not reducing, the accompanying vegetative indices of emotional responses.

The motor coordination effect was evaluated using the Rotharod. The results obtained testify for an absence of an adverse effect of the extract under study on neither skeletal mass tonicity nor motor coordination. Furthermore, the woodruff dry extract seemed to enhance the riding performance of the test mice, whereby the percentage of fall incidence within 30 sec. was reduced by 31 %, which can be indicative of the extract's selectivity on CNS. The dry extract reduces the number of mice falling before 1 minute mark by 6.7 %, but increases the number of the ones falling between 1 and 3 minute marks.

It was also sensible to study the effect of the dry extract on the anxiety levels of the animals in the elevated plus-maze test. The extract usage has little to no effect on the latent period of entering the dark camera (increased by 1.77 %), slightly decreases the time spent in lighted areas (by 9.44 %), increases the uptime in dark racks (3.64 %), decreases the entrances to white (11.11 %) and black (15.6 %) racks as well as significantly decreasing the number of entrances to the main area (46.68 %).

Toxicity screening

To determine the acute toxicity, we used 42 nonlinear white laboratory mice of both sexes weighting 20–22 g, aged 2.0 – 2.6 months as required by the statistics and the duration of experiment. The study was carried out on the laboratory animals divided into 7 groups: Group 1 (n=6) control – animals which received per orally distilled water; 2-3 groups (n=6) – animals, which received aqueous suspension of dry extract at doses that correspond to different classes of toxicity: 50 mg/kg, 500 mg/kg

and 5000 mg/kg in volume 0.8 ml each. Observations were conducted for 14 days. The assessment of the acute toxicity was performed by clinical toxicity test, including animals' general condition, the functional state of the skin and the number of dead animals.

The absence of mortality in mice suggests that LD₅₀ of the studied extract exceeds the maximum dose that was used in the experiment – LD₅₀ > 5000 mg/kg. The value of LD₅₀ let us designate the studied complexes to the VI class of toxicity – relatively non-toxic substances according to the classification by Sidorov K. K.¹⁰.

Qualitative phytochemical screening

As a result of the research, 14 phenolic compounds were revealed in the dry extract, 7 of which were identified. Dry extract contains 9.79 % of phenolic compounds from which hydroxycinnamic acids are 5.08 % and flavonoids are 4.53 %. Dominant compounds are chlorogenic acid – 3.69 % and rutin – 2.61 %.

CONCLUSION

In this study, the sedative activity of dry extract from Lady's bedstraw herb has been determined. By the method of HPLC 7 phenolic compounds were identified and quantified: chlorogenic, 3,5- and 4,5-dicaffeoylquinic acids, rutin, quercetin, apigenin-7-O-glucoside, isoramnetin-3-O-glucoside. Chlorogenic acid and rutin dominate in the dry extract. The dry extract reveals a dose dependent sedative activity on the CNS. According to the classification of Sidorov K. K. the dry extract belongs to the VI class of toxicity – relatively non-toxic substances.

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CONFLICT OF INTEREST

The author declare no conflicts of interest.

ABBREVIATIONS

CNS: central nervous system.

HPLC: high performance liquid chromatography.

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***Fu Chaowei, Liu Jianxiang, Luan Rongsheng, Chen Kun,
Wang Hongqiang, Liu Li and Xu Biao,***
*School of Public Health and Key Laboratory of Public Health Safety,
Fudan University, Shanghai, China,
Huaxi School of Public Health, Sichuan University,
Chengdu, China,
School of Public Health, Zhejiang University, Hangzhou, China, Unilever
Research China, Shanghai, China*

Tea Consumption and Health Beneficences of Green Tea Drinking - A Community-based Cross-sectional Study in Urban Chinese Men

ABBREVIATIONS

PTDR: Present tea drinker; GTDR: Green tea drinker.

1. INTRODUCTION

It is estimated that about two-thirds of the world's population drink tea originated from southern China. Although there are hundred varieties of tea, most can be categorized into 3 sorts, depending on the level of fermentation or oxidation, i.e. 'non-fermented' green tea; 'semi-fermented' oolong tea; and 'fermented' black tea. There is also a fourth category known as 'scented teas', made by mixing various flowers and petals with green or oolong teas; the best known among these is jasmine tea [1-3]. Health effects of tea drinking, especially in cardiovascular disease and cancers, were studied in different setting with varied results, and most were focused on health beneficial effects of green tea in the context that green tea has higher antioxidant activity than black tea or oolong tea [1-5]. Apart from the potential confounding from the socioeconomic and lifestyle factors associated with tea drinkers, the difference in health effects estimation could result from lack of reliable and comparable way of quantifying tea intake.

It is no doubt that information in details on tea drinking such as sorts of tea, current and cumulative amounts of tea consumption, and ways of tea

cooking in general population will be helpful for better understanding its health beneficences. In industrialized countries, there are some studies that reported the consumption habits of tea (mostly, black tea) in general population [6,7]. However, not like black tea that is prevalent principally in Europe and North America, green tea is preferred throughout Asia, especially in China [1]. There are difficulties in measuring tea consumption in green-tea drinkers considering most of green-tea drinkers taking the tea in loose leaves, rather than tea-bags. In China, almost all studies on the health effects of green tea were measured by self-reported average monthly or yearly amounts of tea consumed, or the daily cups of tea taken [8-14]. So far, epidemiological data on the characteristics of tea drinkers, and the amount of tea-leaves consumed in grams in general Chinese population have not been reported yet. The objectives of this study were to describe the characteristics of tea consumption, especially green tea consumption in Chinese male population, further, to analyze the health beneficences of green tea drinking in cardiovascular disease and diabetes.

2. MATERIALS AND METHODS

2.1 Study Population

This was a community-based cross-sectional study carried out in three cities of China: Shanghai, the commercial center of China, Hangzhou, the main green tea outputting area and Chengdu, a city well-known for tea consumption. Subjects of the study were sampled using a multi-stage design. The first stage unit was city: Shanghai, Chengdu and Hangzhou were selected purposively. The second stage unit was community stratified by socio-economic classes, and the last stage unit was building that was sampled randomly using cluster sampling.

2.2 Subjects Recruitment and Data Collection

Subjects of the study were recruited continuously from July 1st to Sept. 30th, 2006. In total, 4804 subjects from Shanghai, Chengdu and Hangzhou responded to the questionnaire interview, with 2944 men and 1860 women. The eligible subjects were those who were at the age of 18 to 64 years old, and had been living in local cities for not less than two years. People unable to answer the questionnaires, or pregnant, or taking medicine related to tea

products at the time of interview were excluded from the study. Considering the gender difference in tea drinking habits and health effects, results from male and female subjects are reported separately.

In this study, present-tea-drinker (PTDR) was defined as a subject who had been consuming tea at least twice per week continuously for not less than 3 months at the time of interview [13].

In each study city, 8-10 data collectors majored in medicine or preventive medicine were recruited. The data collectors were trained for interview with unified training protocol. All subjects were face-to-face interviewed through household visits by interviewers. A structured questionnaire was used in data collection. Information collected from the questionnaire included demographics, tea consumption history, current tea exposure in detail (if any), health status and major disease histories of subjects. The details of tea exposure covered data on frequency, amount, pattern, and preference of tea drinking. The weights of PTDR's routine and maximum tea consumption per time were measured in loose tea leaves with identical balance if he or she drunk loose tea leaves. The PTDRs were asked to take tea leaves, just like their usual way, out of a bag of tea that the interviewers brought with, and put the amount into a small bag labeled with unique code. The labeled bag of tea leaves were then weighted in grams using an identical balance by the investigators in each city. The identical balances were newly bought from the same producer and were adjusted before use.

The reliability and validity of the investigation were assessed through key information re-interview. After completion of general questionnaire interview for all subjects, 30 subjects were randomly sampled in each city for re-interview on key information such as education level, ever tea drinker, present tea drinker, smoking status. The duration between the two interviews was about 2-4 weeks. Kappa values for the two interviews were 0.829, 0.860, 0.860 and 0.780, respectively, which reflect a sound reliability of the study.

2.3 Data Analysis

The database was built in EpiData version 3.1 for Chinese and the statistical analysis was carried out in SPSS 11.0.1 (Sn: 3805233). For continuous data, Student t-test or ANOVA was used to test the differences in

means and Jonckheere-Terpstra Test (J-T test) was applied to medians when variances were not equal. For category data, Chi-square test was applied. Statistical significance was defined as $p < 0.05$ for 2-tailed analysis. The age standardized prevalence of present tea drinkers and green tea drinkers was calculated based on data of China National Population Census 2000 and the average concentration of catechins in green tea infusions was crudely estimated at the basis of 0.12 g/g (dry tea-leaves) [15].

3. RESULTS AND DISCUSSION

3.1 Description in General

A total of 2944 male subjects were recruited for questionnaire interview. Among them, 2927 (99.4%) subjects were eligible (1034 from Shanghai; 896 from Chengdu; 997 from Hangzhou). Seventeen subjects were excluded due to younger than 18 or older than 65 years old. The average age of the subjects in mean was 43.82 ± 13.29 years old, and the family size were 3.35 ± 1.16 persons in median. About two third (66.3%) of the subjects had more than 9 years schooling, and 19% had a salary higher than 3000 CNY per month.

3.2 Patterns and Amounts of Tea Consumption in Urban Male Chinese Population

As shown in Table 1 and 2, results of this survey suggested that there was a high percentage of tea drinking in Chinese male adults in cities, especially for green tea drinking. The percentage of PTDRs was 73.7%, and over four fifth of the PTDRs were green tea drinkers (GTDRs). Percentages of different tea PTDRs significantly varied over cities. Subjects from Shanghai and Hangzhou were dominantly GTDRs (over 96%); however, there were similar percentages of drinking green tea and Jasmine tea in Chengdu. Old people had a higher proportion of PTDRs in all three cities. People with less education years in Hangzhou and Chengdu, and people with higher salary in Shanghai had a higher percentage of PTDRS. The tea consumption habits of PTDRs were stable (in Table 3). Most of them drank tea every day and amounts of tea consumption did not vary over seasons. The average weekly amounts of tea consumption in grams for PTDRs varied from 55.2 grams green tea per week to 71.7 grams oolong tea per week. Also, most of

PTDRs preferred loose tea leaf except for black tea drinkers of whom around 40% using black-tea bags. Almost all PTDRs made tea by soaking. Further, the general characteristics of green tea consumption of these sampled male subjects varied significantly over cities (Table 4).

There were 62 men who had drunk tea for at least 3 months, but they did not drink tea at the time of interview. Thirty-eight of them reported the reason for quitting tea drinking. The first three reasons were health conditions (23.7%), feeling discomfort after drinking tea (15.8%), and no time or feeling troublesome to make tea (13.2%).

Table 1. Current status of tea-drinking behaviors in Chinese male subjects (n=2927)

Characteristic	PTDRs [†] (%)	Non-PTDRs (%)	Total (%)	χ^2, P
Age group (years)				
18-24	145 (41.2)	207(58.8)	352(100)	329.66, <0.001
25-34	287 (59.2)	198(40.8)	485(100)	
35-44	469 (80.9)	111(19.1)	580(100)	
45-54	635 (82.0)	139(18.0)	774(100)	
55-64	620 (84.2)	116(15.8)	736(100)	
Education level [‡] (years)				
0-9	796 (81.0)	187(19.0)	983(100)	61.29, <0.001
-12	653 (75.2)	215(24.8)	868(100)	
>12	702 (65.9)	363(34.1)	1065(100)	
Personal income (CNY/month) [‡]				
<=1000	741 (73.4)	269(26.6)	1010(100)	0.74,0.864
-3000	977 (74.6)	332(25.4)	1309(100)	
-5000	293 (73.3)	107(26.7)	400(100)	
>5000	107 (75.4)	35(24.6)	142(100)	
City				
Shanghai	683(66.1)	351(33.9)	1034(100)	52.85, <0.001
Chengdu	719(80.2)	177(19.8)	896(100)	
Hangzhou	754(75.6)	243(24.4)	997(100)	
Total	2156(73.7)	771(26.3)	2927(100)	

[†]: Present tea drinkers; [‡] Missing data in education level and personal income were 11 and 66 respectively.

Table 2. Sort-specific percentages of PTDRs in Chinese male subjects (n=2927)

Variables	Green tea	Jasmine tea	Black tea	Oolong tea
City				
Shanghai	65.0(670/1030)	0.6(6/1030)	1.0(10/1030)	1.4(14/1030)
Hangzhou	73.0(726/994)	0.3(3/994)	5.0(50/994)	0.3(3/994)
Chengdu	39.3(351/894)	40.8(365/894)	0.9(8/894)	1.1(10/894)
χ^2, P	241.27, <0.001	905.03, <0.001	48.29, <0.001	6.70,0.04
Age group(years)				
18-24	33.1(116/350)	7.1(25/350)	2.6(9/350)	0.6(2/350)
25-34	49.0(236/482)	9.3(45/482)	1.7(8/482)	2.1(10/482)
35-44	64.3(373/580)	14.8(86/580)	2.9(17/580)	1.2(7/580)
45-54	69.9(540/773)	11.9(92/773)	2.2(17/773)	0.6(5/773)
55-64	65.8(482/733)	17.2(126/733)	2.3(17/733)	0.4(3/733)
X_{trend}^2, P	127.99, <0.001	22.08, <0.001	0.00,0.97	3.60,0.058
Education level (years)				
0-9	60.7(595/981)	18.7(183/981)	3.3(32/981)	0.5(5/981)

-12	61.5(532/865)	13.5(117/865)	2.4(21/865)	0.8(7/865)
>12	58.0(615/1061)	7.0(74/1061)	1.4(15/1061)	1.4(15/1061)
X_{trend}^2, P	1.39,0.24	61.31, <0.001	7.54,0.006	4.42,0.04
Personal income (CNY/month)				
<=1000	50.9(513/1008)	21.3(215/1008)	2.9(29/1008)	0.3(3/1008)
1001-3000	64.4(840/1305)	10.0(130/1305)	1.8(24/1305)	0.6(8/1305)
3001-5000	65.0(260/400)	5.8(23/400)	2.0(8/400)	3.0(12/400)
>5000	70.7(99/140)	2.9(4/140)	3.6(5/140)	2.9(4/140)
X_{trend}^2, P	38.59,<0.001	83.72, <0.001	0.12,0.73	23.85, <0.001
Total	59.9(1747/2918)	12.8(374/2918)	2.3(68/2918)	0.9(27/2918)

Table 3. Sort-specific characteristics of tea consumption behaviors in Chinese male PTDRs (n=2156)

Variables	Green tea (%)	Jasmine tea (%)	Black tea (%)	Oolong tea (%)
Seasonal variation	205(11.7)	39(10.4)	17(25.0)	6(23.1)
Everyday drinker	1585(91.2)	349(95.6)	51(79.7)	15(65.2)
Age to start (years) †	22.2±7.8	19.6±7.5	21.3±7.3	-
Cumulative duration (years)	23.5±11.8	26.1±12.4	22.6±12.9	-
Duration (years)†	21.5±12.3	25.1±13.0	17.5±14.8	-
Times per week	10.6±6.7	11.4±4.9	10.4±7.7	-
Grams per time†	5.7±4.0	6.4±3.7	5.8±6.0	-
Max grams per time	6.2±4.3	6.5±3.7	6.7±6.2	-
Cups per time†	4.0±2.3	6.2±13.0	5.8±16.7	-
Volume of cup (ml)†	411±227	354±156	484±606	-
Max cups per time†	5.1±2.8	7.5±13.8	9.9±22.9	-
Soaking time (hour)†	6.3±3.1	6.8±4.2	5.3±3.4	-
Tea type				
Leaf tea	1688(97.3)	362(97.6)	39(60.0)	-
Bag tea	46(2.7)	9(2.4)	26(40.0)	-
Other	1(0.1)	0	0	-
Method				
Boiling	106(6.1)	2(0.5)	3(4.6)	-
Soaking	1635(93.9)	368(99.2)	62(95.4)	-
Other	1(0.1)	1(0.3)	0	-
Taste preference				
Strong	632(36.8)	180(48.5)	29(44.6)	-
Proper	727(42.3)	131(35.3)	27(41.5)	-
Light	360(20.9)	60(16.2)	9(13.8)	-
Grams/Week†	64.2±67.7	75.6±58.3	57.9±53.5	93.4±153.7
Total	1747	374	68	27

†: Mean±SD

Although tea drinking has become a popular life style in both western and eastern countries, the ways of measuring tea consumption are in diversity. It is easy to measure the frequency of tea drinking rather than the amount of tea consumed. In most studies conducted among Westerners and Japanese, ‘cups of tea consumed’ was the most common indicator for quantifying the amount of tea consumption [2,4,7]. Tea consumption has also been measured by the number of tea bags consumed. Unlike Westerners who usually consume tea bags, Chinese prefer to loose tea-leaves. In contrast, most studies conducted in mainland China have used the weight of loose tea leaves consumed monthly or yearly [10,12]. It is obvious that the monthly or yearly estimation is liable to incurring recall bias and measuring bias when using loose

tea leaves, especially when several family members are tea drinkers. In fact, male daily GTDRs reported the consumption of 394.2 g/month tea-leaves in this study, i.e. the average daily tea consumption would be about 13 g, much higher than the 10 g/day measured by the identical balance. The problem in using cups as an indicator for tea consumption is that the size of the teacups varied dramatically in China. In this study, the cups used by the subjects sized from 8 ml to 5000 ml. In fact, some tea drinkers such as tax drivers use a little pot or barrel as 'cup' in China. The problem in using volumes as an indicator is similar to cups. Among male GTDRs of this study, the average volumes of green tea per day varied over individuals ranged from 66 ml to 16800 ml and the Pearson correlation coefficient was only 0.354 between the average grams and volumes per day. As a result, weighs of tea consumption per day should be a good indicator to evaluate the tea consumption in China.

Table 4. City-specific characteristics of tea consumption behaviors in Chinese male GTDRs (n=1747)

Characteristic	Shanghai (%)	Chengdu (%)	Hangzhou (%)	Total (%)	² , P
Seasonal variation	48(7.2)	27(7.7)	130(18.0)	205(11.8)	45.9, <0.001
Everyday drinker	597(89.5)	314(90.8)	674(93.0)	1585(91.2)	5.29, 0.071
Age to start (years)	23.7±7.3	19.8±7.2	22.1±8.1	22.2±7.8	486972.0, <0.001 [‡]
Cumulative duration (years) [§]	22.6±11.6	22.9±12.6	24.7±11.5	23.5±11.8	485387.5, <0.001 [‡]
Duration (years) [§]	22.4±11.6	14.5±12.0	24.2±11.6	21.5±12.3	84.2, <0.001 [†]
Times per week [§]	9.1±4.7	11.1±8.8	11.7±6.9	10.6±6.7	483646.0, <0.001 [‡]
Grams per time [§]	6.0±3.6	5.5±3.5	5.7±4.5	5.8±4.0	2.1, 0.12 [†]
Max grams per time [§]	6.1±3.6	5.7±3.7	6.7±5.1	6.2±4.3	6.8, 0.001 [†]
Cups per time [§]	4.1±2.3	4.4±2.3	3.7±2.2	4.0±2.3	11.3, <0.001 [†]
Volume of cup (ml) [§]	384±161	367±292	459±235	411±227	483589.5, <0.001 [‡]
Max cups per time [§]	5.0±2.8	5.4±2.6	5.0±2.8	5.1±2.8	467098.0, 0.84
Soaking time (hours) [§]	6.4±3.0	6.7±3.1	5.9±3.3	6.3±3.1	8.59, <0.001 [†]
Tea type					Fisher's p=0.009
Leaf tea	659(98.5)	334(95.2)	695(97.2)	1688(97.3)	
Bag tea	10(1.5)	17(4.8)	19(2.7)	46(2.7)	
Other	0	0	0	1(0.1)	
Method of preparation					Fisher's p<0.001
Boiling	53(7.9)	4(1.1)	49(6.8)	106(6.1)	
Soaking	615(91.9)	347(98.9)	673(93.2)	1635(93.9)	
Other	1(0.1)	0	0	1(0.1)	
Taste preference					25.9, <0.001
Strong	206(31.1)	132(37.6)	294(41.7)	632(36.8)	
Proper	319(48.1)	128(36.5)	280(39.7)	727(42.3)	
Light	138(20.8)	91(25.9)	131(18.6)	360(20.9)	
Grams/Week	58.5±58.2	64.1±62.1	69.5±77.4	64.7±69.5	476156.5, 0.01 [‡]
Total	670	351	726	1747	

[§]: Mean±SD; [†]: One way ANOVA; [‡]: J-T test

As discussed above, due to the poor comparability of tea-related studies, it's difficult to assess the tea consumption according to the findings from studies in other countries. Based on data from the US National Health and Nutrition Examination Survey 1999-2002, Maureen et al (2006) reported that the average amounts of tea consumption were 193.9 grams per day in 20-39 years old, 203.8 in 40-59 years old and 172.3 in ≥ 60 years old respectively in US male population, however, the main sort of tea consumed was not mentioned. Compare to Maureen's findings, the average daily tea consumption in Urban Chinese male population was lower if the tea consumption in grams in this US survey was not estimated according to milliliter [6]. Based on data of over 7,000 adults aged from 19 to 64 years old from the UK National Diet and Nutrition Survey (NDNS), Henderson et al (2002) indicated that 77% of men drank tea (68%, 73%, 80% and 82% in 19-24 years old, 25-34 years old, 35-49 years old and 50-64 years old respectively), with a median consumption of 3024 ml per day, which is higher than results from this study, and the percent of tea consumption increased as age, which is similar to this study, however, the main sort of tea consumed was not mentioned in NDNS [7]. The possible reasons are the differences in the definition of tea drinking, research methods and the age-sex distribution of populations between UK and our study. Also, the proportions of tea drinking in Japan were higher than that in our subjects (69.6%, 81.1%, 70.3% vs. 59.9%, respectively) under the same considerations in definition, i.e. a cup or above per day [16-18].

3.3 The Relationship between Green Tea Drinking and Cardiovascular Diseases and Diabetes Mellitus

Green tea drinking was significantly related to a low risk of cardiovascular disease (OR=0.024, 95% CI=0.012-0.048) and diabetes (OR=0.038, 95% CI=0.012-0.120). After adjustment for age, education level, smoking, and personal incoming level, such protective effect was found stronger (Table 5). Results of this study were similar to results from many other studies in China and western countries [5, 16, 19-24]. Considering the potential protect effect of tea drinking to health will not take effects until the subjects has been drinking tea continuously for some time, we excluded those subjects having a diagnosis of cardiovascular or diabetes before or within 0.5 years after they

began to drink tea. The health benefits of green tea are attributed to the polyphenols, particularly the catechins, which are present in higher quantities in green tea than in black or oolong tea [1-5]. The estimated average of catechins intake was 0.86 g/day for those daily GTDRs, which could contribute to such inverse relationships partly [15,24]. In additions, it was observed that green tea had the beneficial effects on body mass index, blood glucose and lipid profile in obesity people [25]. However, self-reported disease information might subject to information bias in estimating the protect effects of green tea drinking in this study.

Table 5. The relationship between green tea drinking and risk of cardiovascular diseases and diabetes

Disease	GTDR [†]		OR (95%CI)	P	OR (95%CI) [‡]	P [‡]
	Yes	No				
Cardiovascular diseases						
Yes	8	308	0.024(0.012,0.048)	<0.001	0.011(0.005,0.024)	<0.001
No	1514	1089	1.000		1.000	
Diabetes						
Yes	3	56	0.038(0.012,0.120)	<0.001	0.027(0.008,0.089)	<0.001
No	1687	1129	1.000		1.000	

[†]: GTDR with age of starting to drink tea younger half year or more of diagnosis.

[‡]: Current education levels, age, personal incoming levels and smoking status were adjusted in nonconditional Logistic Regression model.

3.4 Methodology Considerations

This was a cross-sectional study implemented in urban Chinese male population. To have a better representativeness, three major cities located in different areas of China with different perceived tea-drink patterns have been purposively selected. The sample size and sampling effects were estimated according to previous studies in China. This should be a first population-based survey comprehensively in assessing the characteristics and amounts of tea consumption in Chinese urban men. However, China is a huge country with great diversified socioeconomic status and life styles in its population. Larger sample size and wider coverage of cities are demanded for a sound generalizability in further studies on tea consumption in Chinese population. In additions, a cross-sectional study could only be used for describing the association between green tea drinking and the studied health outcomes, rather than for making causation.

In this study, daily tea consumption was comprehensively assessed with regard to sort of tea, duration of tea consumption, way of preparing tea extracts, volume in cups, amount in grams and frequency of daily and weekly tea consumption. Due to the limited studies on tea consumption in China, there was no well-accepted definition for present tea drink. In this study, the present-tea-drinker (PTDR) was defined as a subject who had been consuming tea at least twice per week continuously for not less than 3 months at the time of interview. This definition has been used in a health-related epidemiological study in urban China [13].

4. CONCLUSION

In summary, this population-based cross-sectional study is informative and comprehensively in assessing the characteristics and amounts of tea consumption in Chinese urban men. Findings from this study indicate the health beneficences of green tea drinking in cardiovascular diseases and diabetes.

CONSENT

Written informed consent was obtained after complete description of the study to subjects.

ETHICAL APPROVAL

The study has been approved by the IRB of Fudan School of Public Health.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Shi-Ni Lim, Zaheedah Yahya, Dimphy Zeegers, Thiha Moe, Ei Ei Phyo Kyaw, George SH Yeo, M Prakash Hande and Ene-Choo Tan,
*KK Research Centre, KK Women’s and Children’s Hospital, Singapore,
Department of Physiology, Yong Loo Lin School of Medicine,
National University of Singapore,
Maternal-Fetal Medicine, KK Women’s and Children’s Hospital, Singapore,
Office of Clinical Sciences,
Duke-NUS Graduate Medical School, Singapore*

Distribution of Telomere Length in the Cord Blood of Chinese Newborns

1. INTRODUCTION

Telomeres are specialised nucleoprotein structures made up of tandem repeats of hexamers. They act as a cap to protect chromosome ends from degradation and fusion with other chromosome ends. Telomere repeats provide a mechanism for DNA replication at the ends of chromosomes and are essential for chromosomal stability. As telomeres undergo progressive shortening with every replication, the length is frequently used as a marker for cell division and proliferative potential [1-3].

In men, short telomeres have been associated with higher risk of cardiovascular and metabolic disorders, dementia, emphysema, depression, and cancer [4-8]. Cells with critically truncated telomeres exhibit chromosomal rearrangements which eventually lead to malignancies or apoptosis. Mice with shorter telomeres have increased incidence of tumour formation [9,10]. Hence telomere length is also a marker for organismal fitness and risk for certain diseases.

Telomere length is an inherited trait. There is inter-individual variability even when adjusted for age [11,12]. However, it is also modifiable by environmental factors. For its association with both inherited disorders and diseases with both genetic and environmental influences, it is not clear whether the disease predisposition is due to the inherited shorter telomere length, or

that the shorter telomere length is a consequence of the disease. There is no longitudinal data on telomere length in such patients.

Combined epidemiologic and clinical studies have shown that intrauterine environment affects foetal growth and development and also subsequently impacts adult health disease and survival. This is due to the fact that foetal life is associated with rapid cell division and an insult or injury during this period can have significant long-term consequences on postnatal tissue or organ function [13]. There is a significant relationship between low birth weight and later development of cardiovascular disease and impaired glucose tolerance (IGTT) in adult life [14]. Besides cardiovascular and metabolic diseases, those born with very low or low birth weight (below 2500 grams) are also more at risk for cognitive impairment, behavioural problems and higher risk of hepato-blastoma [15,16]. As the spectrum of diseases overlaps with those associated with short telomeres, it would be interesting to find out whether the low weight births already have shorter telomeres at birth due to intrauterine stress.

There is no large scale study on telomere length in newborns. There is also no data on telomere length for children from our population. In this study, we investigated the telomere length of newborns from Chinese parents in a public hospital in Singapore. Our data will provide some insight into the range of telomere length at birth for children with different birth weight and gestational ages for the Asian population.

2. MATERIALS AND METHODS

2.1 Cord Blood Samples

The study protocol was approved by the Sing Health Institutional Review Board which oversees all research activities in the hospital. Deliveries involving Chinese parents were identified and the cord blood was collected in both heparin and EDTA tubes. Data on gender, birth weight, gestational age and maternal age were also collected. All newborns were singleton births, free of major congenital birth defects and not suspected of chromosomal disorders.

2.2 DNA Extraction

Genomic DNA was extracted from whole blood using DNeasy Blood and Tissue Kit (QIAGEN, Valencia, CA, USA) according to manufacturer's protocol. The quality and quantity of extracted DNA was assessed by optical density measurement at 260 nm and 280 nm using the NanoDrop 1000 Spectrophotometer (Fisher, Wilmington, DE, USA).

2.3 Telomere Restriction Fragment (TRF) Assay

The TRF length analysis assay was performed using the Telo-TAGGG Length Assay Kit (Roche Applied Science, Mannheim, Germany). Extracted pure genomic DNA (1.5 µg/sample) was digested with FastDigest® restriction enzymes, *Hinf1* and *Rsa1* (Fermentas, Burlington, Ontario, Canada), for 10 minutes at 37°C. Digested DNA fragments were fractionated by gel electrophoresis in a 0.8% agarose at 60 V for four hours. The gel was then washed in hydrochloric solution (0.25 M HCl), denaturation solution (0.4 M NaOH) and neutralisation solution (1 M Tris 7.4, 5 M NaCl). The DNA fragments in the gel were transferred to the Nytran® positively-charged nylon membrane (Sigma-Aldrich, St. Louis, MO, USA) overnight. Subsequently, DNA is cross-linked onto the membrane by ultraviolet light (Stratagene, Santa Clara, CA, USA), hybridized with Digoxigenin (DIG)-labelled telomere probe at 42°C for three hours and washed with a series of anti-DIG alkaline phosphatase washing solutions. The membrane was incubated with avidin-conjugated horseradish peroxidase for five minutes, followed by horseradish peroxidase substrate solution, tetramethylbenzidine, for five minutes. Visualization of the DNA fragments were detected on X-ray films (Kodak, Rochester, NY, USA). The chemiluminescent signals were scanned by the Kodak Gel imaging system and analyzed by the Kodak imaging software for quantitative measurements. The mean TRF length for each lane was estimated as the weighted average of the optical density as described in the TeloTAGG kit. The DIG Molecular Weight Marker from the kit was included in every gel as size markers.

2.4 Statistical Analysis

Relationships between continuous variables were assessed with Pearson or Spearman correlation. Partial correlations were also used to control for

interaction between variables. All analysis was done using SPSS 19. Statistical significance was set at $P < 0.05$.

3. RESULTS

The demographic variables of the study population by gender and TRF results are presented in Table 1.

Table 1. Distribution of variables in the study samples

Group	Males (n=96)		Females (n=88)		P
	Mean \pm SD	Range	Mean \pm SD	Range	
Birth weight (g)	3233 \pm 525	610 – 5184	3226 \pm 401	2200 – 4298	.921
Gestational age (days)	266.09 \pm 11.10	196 – 280	267.89 \pm 7.52	252 – 288	.205
Maternal age (years)	32.86 \pm 4.90	18 – 42	32.32 \pm 5.28	17 – 47	.843
TRF (kb)	12.32 \pm 2.50	6.63 – 19.21	12.99 \pm 2.35	8.19 – 18.66	.065

There was no significant deviation from normality for all the variables. There was no statistically significant difference in maternal age, birth weight and gestational age between male and female births. There was a wide range for mean TRF length with the longest almost three times that of the shortest. There was also a trend for shorter telomeres in males compared to telomeres in females although the difference did not reach statistical significance. The shortest mean TRF length was a male with birth weight of 3.73 kilogram (kg), gestational age of 273 days and the mother was 23 years old. The longest mean TRF length was of a male with birth weight of 2.89 kg, gestational age of 259 days and the mother was 42 years old. Mean TRF length of the youngest birth at 196 days and birth weight of 0.61 kg was 9.26 kilobases (kb). The heaviest birth of 5.18 kg was a male with gestational age of 266 days and the mother was 31 years old. His mean TRF length was 15.15 kb. The heaviest female birth was 4.298 g (gestational age 273 days and 26-year old mother) with mean TRF length of 11.73 kb. A representative TRF blot from whole blood DNA of nine samples is shown in Fig. 1.

There was significant inverse correlation between maternal age and gestational age (Pearson's $r = -0.161$, $P = 0.029$) with older mothers giving birth earlier. There was also highly significant correlation between higher birth weights and older gestational ages (Pearson's $r = 0.385$, $P < 0.00$). There was no statistically significant correlation of mean TRF length with birth weight or

gestational age, even after controlling for maternal age. And there was no independent correlation of mean TRF length with either birth weights or gestational ages even after controlling for the other variable.

There were 143 mothers who were older than 30 years. For this group there was statistically significant correlation between maternal age and mean TRF length of the newborns (Pearson’s $r = 0.190$, $P = 0.023$), with older mothers giving birth to newborns with longer telomeres. Similar to the whole sample set, there was again statistically significant correlation between higher birth weight and older gestational age ($r = 0.417$, $P < 0.00$).

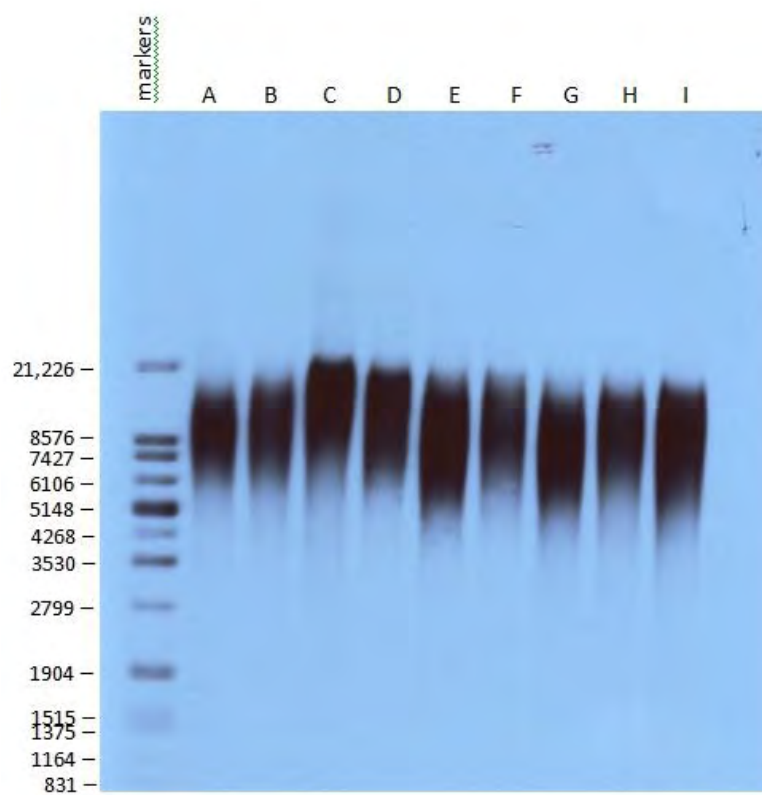


Fig. 1. A blot used for TRF measurements

First lane on the left is the DIGmolecular weight markers with the sizes in basepairs, lanes (A) to (I) are cord blood samples.

4. DISCUSSION

Our data is in line with the higher incidence of earlier deliveries for older mothers [17] and the expected higher birth weight with older gestational age [18, 19]. Consistent with other studies, there is wide inter-individual variability in mean TRF length in newborns [20, 21]. Moreover, the huge variations in TRF

length in newborns are as large as the variations observed in adults [22]. Hence the wide range of age-adjusted TRF length in adulthood could be attributed to strong genetic determinants that had exerted its effect *in utero* [23].

The previous largest study was from the United States in 2002 (Okuda et al) which found the mean TRF length to be 11.01 ± 0.058 kilobasepairs (kb) for cord blood [20], less than the average obtained in this study. Another study had even smaller range of 7.491 – 9.473 kb [24]. However, the sample size of that study is very small with only 26 newborns. One explanation could be that our study sample had a bigger range of birth weight (0.61 – 5.18 kg compared to 1.60 – 4.75 kg). Our average TRF length is closest to the 12.34 kb reported for 15 – 19 week old fetal tissues from 11 elective abortions [25]. One study reported even longer mean TRF length of 16.4 kb in 12 newborns [26]. Other studies had even smaller sample sizes of 10 or less [27-29]. A summary of previous studies on newborn telomere length is presented in Table 2.

The shortest sample for the US study at 8.55 kb was longer than our shortest at 6.6 kb. As our samples were anonymously collected, we did not have any clinical data for this pregnancy which was a full-term birth with regard to pregnancy complications or prenatal stress experienced by the mother which could influence telomere length in the offspring [32]. While it was much shorter than the shortest of 8.55 kb in that study, the shortest in the study by Friedrich et al was 7.49 kb for a preterm newborn while Holmes et al had two out of five preterm infants with mean TRF length in the mid-7 kb range [24,33]. There were also 11 additional samples in our study with mean TRF length of < 9 kb. Hence the short mean TRF length for this infant could just be an extreme case of natural inter-individual variation. At the other end of the range, the longest mean TRF length in Okuda et al was only 13.32 kb whereas the longest in this study was 19.2 kb. One possibility for the longer mean TRF is that some of the subtelomeric restriction sites for the enzymes used in this assay might be polymorphic in our population, resulting in over-estimation and higher mean TRF length for those samples.

Table 2. Summary of published newborn telomere length based on Southern blot analysis of mean telomere restriction fragment (TRF) length

Reference	Origin	Sample characteristics	Tissue studied	Birth weight	Gestational age (days)	Mean TRF (kb)± SD
Akkad et al. [30]	UK	38 AG [†] 34 SGA [†]	whole blood	3497 ± 430 2342 ± 433	276.5 ± 9.1 270.9 ± 13.3	10.36 ± 1.6 10.33 ± 1.3
Allsopp et al. [27]	USA	10 full term	White blood cells	-	-	10.0 – 12.5 [^]
Davy et al. [31]	USA	32 growth restricted 36 age-matched	placenta	-	259 - 280	11.50* 11.25*
Frenck et al. [26]	USA	12	leucocytes	-	-	16.4 ± 1.2
Friedrich et al. [24]	Germany	11 full term 15 pre-term	leucocytes	-	> 259 < 259	8.323 ± 0.50 8.512 ± 0.52
Okuda et al. [20]	USA	86 blacks 48 whites	white blood cells	3120 ± 57 3413 ± 74	269.5 ± 1.47 270.2 ± 1.61	10.98 ± 0.09 10.92 ± 0.11
Pipes et al. [29]	USA	29 hispanics		3282 ± 77	270.2 ± 2.03	11.25 ± 0.10
Zeichner et al. [28]	USA	5 9 [#]	mononuclear cells mononuclear cells	- -	- -	11.2 ± 0.93 10.08 ± 1.45

[†] AG: appropriately grown SGA: small for gestational age.

[^] Range estimated from bar graphs.

* Mean estimated from bar graphs.

[#] Uninfected children born to HIV-positive mothers.

Okuda et al. also reported that telomere length results were similar for males and females [20]. While we found a trend towards shorter telomeres in males, it did not reach statistical significance. Nevertheless our result is consistent with other studies which showed that telomeres are longer in females compared to males of the same age for adults [34-36]. Our data showed that this difference might already be present at birth.

The present study is in line with two previous reports that there was no association between birth weight and mean TRF length in newborns, which had sample sizes of 72 and 68 [30,37]. However, another study reported significantly longer TRF length in "very low birth weight" pre-term compared to "low birth weight" newborns and this is based on a sampling size of 15 and 11 [24]. More studies involving larger sampling sizes are required to establish if impaired growth during intrauterine events is associated with higher telomere attrition. Postnatally, infants who were small at birth might undergo rapid growth and attain normal height and weight within a year. As telomerase activity is absent in many somatic tissues, it would be expected the telomeres in these cells would undergo more rapid attrition compared to normal birth weight infants if the catch-up growth involved more replication and cell divisions. Longitudinal studies involving serial sampling over time during this period would be needed to ascertain if this is indeed the case.

A large proportion of small for gestational age (SGA) and intrauterine growth restriction (IUGR) cases are due to placenta insufficiency. Shorter telomeres have been reported for placental trophoblasts for pregnancies complicated by preeclampsia or intrauterine growth restriction [38,39]; while the expression of hTERT, the rate-limiting factor of telomerase activity was also found to be lower for the latter. Another group working on fetal growth restriction samples found similar results for placental telomere length and telomerase activity [31]. The reduced telomerase activity could explain the shorter telomeres found in the IUGR and FGR placentas but there was no corresponding decrease in telomere length for the FGR cord blood samples, leading them to conclude that the pathology is placental in origin. Future studies to assess levels of telomerase activity and telomere length in IUGR/FGR placentas (and fetal tissues if possible) at various stages of pregnancy would be needed to better understand the pathogenesis.

The known determinants of telomere length are genetic factors [12,40], age and gender [20,21,23,34,35,41-43]. Several findings lend support to the idea that paternal inheritance is the main genetic factor predicting telomere length, where higher paternal age is associated with longer newborn telomeres [41,44-46]. Nawrot et al. [35] further proposed the X-linked inheritance of telomere length between fathers-daughters, mothers-sons, mothers-daughters and amongst siblings. In our study, the paternal age at the time of birth of the newborns were not recorded and hence we were unable to test if there was correlation between paternal age and the TRF length of their newborn daughters, or between mothers' age and newborn telomere length of their newborn sons after adjusting for paternal age and vice versa. We found no correlation of mother's age with the mean TRF length of their sons even after adjusting for gestational age or birth weight. Interestingly, for older mothers (> 30 years), a positive correlation was observed between maternal age and mean TRF length of their newborns. This was different from a previous study which found that paternal age but not maternal age at the time of birth is positively associated with telomere length [41]. However, a direct comparison cannot be made as the telomere length measurement was done when the subjects were aged 35-55 for that study and the observed difference could be due to different postnatal attrition rate.

Telomere length is known to be involved in aging and is associated with age-related diseases. Further research on telomere-telomerase maintenance *in utero* will lead to better understanding the factors which determine telomere length at birth. This will expand our knowledge on the impact of being born with relatively shorter telomeres and the risk of developing age-related chronic diseases associated with short telomeres.

4. CONCLUSION

To our knowledge, our study has the largest sampling size for telomere length in newborns, with 96 males and 88 females. In addition, our samples are more homogeneous in that all 184 are of Chinese ancestry. Our results showed a wide range of mean TRF length with no correlation with either gestational age or birth weight.

CONSENT

Written informed consent was obtained from women whose prenatal fetal ultrasound scan results indicated that there might be intra-uterine growth restriction. Remaining samples were collected anonymously from delivery suites with no identifier recorded.

ETHICAL APPROVAL

The study protocol was approved by the Sing Health Institutional Review Board (CIRB Ref: 2010/100/A).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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SECTION 6

Humanities & Social Sciences

Wang Ping,

English Department, College of Foreign Languages, Jiaxing University, China

Change and Development: A Case Study of the Implementation of Mandarin Chinese into the UK School Timetable

1. INTRODUCTION

One of the reasons for the departure of a Spanish colleague in the summer of 2006 was the direct consequence of the implementation of Mandarin Chinese in the Modern Foreign Language (MFL) curriculum. The number of full time staff in the MFL department had increased from seven to nine. The governing body and strategic leadership team had looked at the implications for and against this measure, and had concluded that the school was able to only financially justify eight full time staff in the MFL department. Everyone in the department felt bad because it was the first time in my formal school that someone had to leave. Of course, other colleagues left in the past, but they chose to do so for personal and family reasons. This informs what [1] finds that implementing a new language program may effect change within a given school, and staffing, instructional organization, allocation of human and material resources, and student and staff timetables are a few examples of areas that may be affected.

Implementing Mandarin Chinese into the UK school timetable is causing a big challenge and change within the MFL department. According to [2], about 60% of the teachers claimed they were qualified in teaching Mandarin Chinese. They were either qualified teachers in China or in the UK but in subjects other than Mandarin Chinese. Most of those unqualified teachers were qualified English teachers in China. Therefore it might not take long to train them to be. [3] (p.229) states that linguistic theories are the backbone of language teaching in the sense that they equip teachers with analytical tools to solve language problems on the job. For instance, an understanding of

ical tools to solve language problems on the job. For instance, an understanding of the importance of appropriateness in speech would provide a teacher with a sound base for teaching 'chi fan le ma?' ('Have you eaten?') as an opening greeting rather than the conventional 'nihao!' (hello!). [4] shows his concern on the major challenges facing by native speakers Mandarin Chinese teachers in Australia.

1. **Acculturation:** *This applied particularly to the educational environment where behavioural patterns and attitudes of students as well as interpersonal relationships among teaching staff differed greatly from those which a native teacher would have experienced in a Chinese learning environment.*

2. **Pronunciation:** *It seems to be a common phenomenon that native speakers whose mother tongue is other than the Mandarin dialect speak Mandarin with a pronounced accent, and some have great difficulty in mastering particular Mandarin sounds. In general, native speakers from Malaysia, Singapore, Hong Kong and to a lesser degree, Taiwan, fall into this category.*

3. **Romanisation:** *Taiwanese, even those whose native tongue is Mandarin, would have no exposure to the pinyin Romanisation system".*

The issues mentioned above also confronted the Mandarin Chinese teachers surveyed in the UK, especially pedagogical and classroom management problems. [3] explained that native speakers typically came from an educational environment in which students expected to be led by teachers to a greater extent than their Western counterparts. In such an environment, teachers also prefer a more teacher-centred style of classroom management than Western colleagues. Another common problem may be language-related. [5] noticed this among non-English native student teachers in the UK, who found that such teachers often faced challenges in teacher-pupil relationships. These were primarily about understanding what students were saying to each other and to the teacher, knowing when students were serious or trying to take advantage, understanding humour and sarcasm, and being made to feel 'foreign' by the students. Procedure-related problems such as understanding hierarchies or disciplinary procedures for students, identified by [5], were also found among the part-time Mandarin Chinese teachers who responded to the survey.

Moreover, the lack of adequate textbooks and other teaching and learning materials in Mandarin Chinese is a concern for teachers. However, as [6] (p.131) claimed that there is no such thing as an ideal textbook. Materials are but a starting point, teachers are the ones who make materials work; they make them work for their students and for themselves in the context in which they teach. Mandarin teachers perhaps should not depend too much on a formally approved textbook, as they once would in the context of the Chinese education system. Finally, most Mandarin Chinese teachers in the UK complain that the GCSE and A-level Mandarin Chinese examinations are intended for British-born Chinese who speak Mandarin at home, but are too difficult for most British students.

Any change is complex because it is inextricably linked to our emotions: sorrow at the sense of loss of the old, and anxiety at the uncertainties that the new will bring [7] (p.16). This paper is going to explore some of the issues related to this new change within the MFL department. It begins with the initiative and the context of the change. Then it reviews resistance and its resources to the change. The next part goes through how these barriers were overcome and the final part of the paper will summarise some useful suggestions for those who want to implement similar change within a MFL department in the UK. In a word, the paper focuses its on the following questions: what problems lie ahead for the secondary schools in the UK school context? How is Mandarin Chinese taught in the secondary schools in the UK?

2. BACKGROUND AND CONTEXT

The importance of MFL is said to lie in helping pupils to understand and appreciate different cultures and countries; and to think of themselves as citizens of the world [8] (p.162) and if education must enable us to respond positively to the opportunities and challenges of the rapidly changing world in which we live and work [9] (p.3), we would assume that within any MFL department today, what languages to teach is a question. In addition, what do “opportunities” mean in terms of foreign languages? When Moon says that the structure of employment in the twenty-first century is likely to have a greater European and international character, the ability to communicate in a second or third language, or even to learn a new one quickly, could become crucial to many jobs [10] (p.91). What does he mean by “international

character”? What changes are happening in the UK in terms of international relationship? We will agree that China’s international importance, relevance and profile are increasing.

In the UK, the government departments of education in English, Wales and Scotland, together with the British Council, have agreed on a strategy to support the learning Mandarin Chinese through direct access to native speakers, school linking and collaborative activities. Qualified and experienced teachers from China are recruited to act as Chinese language assistants. Confucius classes are established in the UK secondary schools and fully-trained Mandarin teachers are sent to boost the classroom teaching.

Statistic shows that it is still not very common for secondary schools in the UK to include Mandarin Chinese on timetable, though a significant number of schools have started to offer Mandarin Chinese. So why did the MFL department of my school decide to do so? Before I answer the question, I will give a very brief description of the school. It is a catholic girl’s school in London. The school is a “language college”. Traditionally, it only offered French, then Spanish on school’s timetable. Today, it offers seven languages in all, 3 in curriculum time, the others in twilight time: French, Spanish, Russian, Italian, Portuguese, Japanese and Mandarin (which was started in 2001). 56% of the students are girls whose parents are first or second generation immigrants from Africa and Caribbean. In the local community, unemployment is high, and the number of pupils who receive free school meals is an indicator of the socio-economic background of these families. I agree with Fullan that less-well-educated communities are not as likely to initiate change or put effective pressure on educators to initiate change on their behalf [11] (p.62). Therefore the new policy in MFL in my school is not because of pressure from parents.

According to Fullan, one of the factors affecting initiation of a specific educational change is the “access to information [11] (p.57)”. It is true in my school case. The Head of MFL department and coordinator of Language College spends large amounts of time at conferences and in workshops within ongoing professional networks of communication among her peers, which contributes to her identifying the need for a new direction for the development of the MFL department – to offer Mandarin Chinese and to implement it into school timetable.

However, that only the Head of MFL department should identify the need for the change is not enough. Another very important factor affect the initiation is “advocacy from central and/or school administrators”. As Fullan claims, at the school level, the principal has always been the “gate-keeper” of change, often determining the fate of innovations coming from outside or from inside [11] (p.59). The current principal in my school was appointed two years ago. As a new Head, she was very keen to implement something new in the school, and to support the Language College ethos. Also, she shows how important “marketing the school or selling the school” [12] it is for her. Since the establishment of the so-called ‘quasi-market’ in education, parental choice, open enrolment, age-weighted pupil funding, and a mixture of different kinds of schools in any locality are all intended to engender a climate of competition [13,14,15,16]. It is therefore not surprising that she was very supportive for this new policy. However, will it be easy to implement it?

3. RESISTANCE AND CAUSES

According to [17] (p.172), it is often easy to identify the need for change but agreeing on the direction of change is another matter, especially when people are still arguing about the place of MFL in the school curriculum. Even if not everyone is as extreme as Williams who insisted that allowing young people to give up MFL after Key Stage 3 is wise and it would be even wiser to take the more radical step of limiting compulsion to just one year because this knowledge cannot be said to be of utility to the vast majority of English-speakers. There is a conspicuous lack of hard evidence that foreign language skills will increase productivity and employment [18] (p.117). Many educators more or less take his side. My school is not an exception. [19] identified this reason for resisting change as “belief that change is unnecessary”. “Resistance is always a likely response, especially in the early of a change initiative and most frequently among the more experienced and long-serving members of a teaching community” [20]. Other members of staff, including some of the Strategic Leadership Team in my school expressed their doubts when the new plan was raised.

At most of the UK secondary schools, French had always been the accepted traditional language. All pupils learned French from Year 7 to 11, and all had a year of Spanish in year 9. The Head of Department said it took her three years to raise the status of Spanish to the same level as French in the department. Spanish and French are now taught to all pupils having the same percentage of curriculum time over the 3 years at the cost of one fewer hour on Technology. In fact, one nature of change

was identified by [21] as "structural and systemic", which means "any real change will affect the whole system, in that change in one part of institution has a knock-on effect in other parts". As a result, it is understandable that other department might resist the change due to the possible "loss of status and power" [19], if another new language is taken into timetable.

Besides the resistance from the colleagues from other departments, as we all know, learning foreign language requires substantial investment of resources. Thus it makes the task even harder that the possible cost of taking a completely different language into school timetable. Even as early as in 1976, the Prime Minister of the time, James Callaghan questioned in a speech the value for money of the British education system [7] (p.1). Is it worth investing in new teachers, buying new textbooks and building up other resources needed for this Mandarin Chinese subject? Does the school have some other more urgent needs for this money? Thus the second cause of the resist is due to "the relatively high cost" [19]. Even the Head and Head of the Department are very supportive; the resource of Mandarin is still quite limited in the department compared with French and Spanish. Let along the additional materials, they don't have enough textbooks for each student therefore the Mandarin teacher needs to do lots of photocopies.

Within the MFL department, the change is likely to be resisted if it threatens the job security of those affected by it [19]. In the case of my working school, Spanish is directly threatened by this new policy. Year seven girls used to learn French and Spanish at the same time. Now, all Year 7 girls are doing two terms of French, one term of Spanish, and one term of Mandarin, which means fewer hours for Spanish, of course. That is why one Spanish teacher will have to leave. In addition, even if it is not that serious to cause the threaten of "job security", other language teachers might still feel what [22] (p.75) described that in some schools where there were already two languages on offer in the lower school, colleagues might be unwilling to see a third introduced because they would be seen as 'competing' for pupils at the option stage. In my school all students in Year 8 choose two from French, Mandarin or Spanish. No teachers would be happy to see the students drop her/his subjects and naturally they all hope to keep their talented and well-behaved students so that they could have better candidates for GCSE and A-level exams. Thus the competition arose from here: who is to learn what language? In the case of my school, 45 girls chose to do Mandarin and thirty of them got the chance. The Head had planned to choose girls who were well behaved and also gifted in Languages to learn Mandarin because

it is much more difficult than European languages. However, the final list of the students, which was decided by a French teacher because the Head of the department was away for a school trip, turned out to be a mixed one with several students who were very difficult to manage and didn't take the subject seriously. Therefore, we can sense the resistance from other language teachers, which is quite natural response.

4. STARTING SMALL AND THINK BIG

[23] describes the change process as having three major components: initiation, implementation and institutionalisation. In the case of my school, the change is still at early “implementation” stage because it is only in the second year. So what might be interesting is how the Head of MFL department managed to overcome the resistance to start the implementing Mandarin into school timetable by distributing the school kids in the different classes as a lash-up or contingent measure of meeting the resistance.

[24] suggested that if necessary, implement change initially on a small scale and Fullan [25] also said “starting small and think big”. That is exactly what the Head of MFL department in my school does. Right at the beginning, she knew what her long-term goal was. But she didn't implement the change suddenly. Instead she started to offer Mandarin in one of the after school clubs in 2001. In order to help the students, staff and parents know more about China and Chinese culture so that the learning of Chinese language becomes more acceptable in the school organised by British council in 2004, in which the students have opportunities for contact with speakers of the language, through structured interviews, letters or e-mail messages, face-to-face meetings, art, music, song and student exchange programs, which also make learning the target language meaningful. And it turned out to be a big success. Students and staff came back from China and shared their experienced community, she started to join the Summer Mandarin Immersion Trip to China with their family members and peers, which contributed to a Chinese atmosphere in the school and community. At the same time, with support from the Head and the Governors of the school, she decided it was time to seriously begin the innovation within the department. First she found a Chinese Language Assistant via British Council who actually is an experienced teacher in China. In this way it saves her time to train a new teacher and saves the school money if we bear in mind that “relatively high cost” was always one cause of the resistance.

In order to avoid resistance from other departments, she kept it within the MFL department. Chinese was taught in curriculum time by sharing with Spanish's time thus it didn't affect any other department.

During the process, she knows that telling people about the progress of the change can help to maintain commitment to the change [24]. Also according to [26], one of the key factors for success at this stage is early feedback on progress made. Therefore, she herself first continually showed her commitment to this new change within the department. For example, she fully supported the new Mandarin teacher with resource and classroom management. She helped the new Chinese teacher with the techniques of Information Technology. She encouraged the new teacher to participate in professional development activities and teach her how to arrange and design a variety of interactive learning activities for students. She changed the new teacher's view towards the assessment- either an aid to learning or a process which enabled students to demonstrate their knowledge and skills in the target language, based on curricular expectations. She helped this new teacher from China adapt gradually in the education system in the UK by involving the teacher in accessing a variety of professional development activities in language learning. She used to comment:

"Technology can provide greater access real-world problems and authentic contexts for facilitating Mandarin learning and teaching, and provide alternative methods of representing and communicating knowledge. It fosters innovation, facilitates dialogue and offers potential for developing new practices in the education and research communities. And education technology can be crucial to the success of any language learning and teaching program. Professional development, which supports effective practice, is essential to the successful use of any technology, resource or application".

And she never forget inform the Head and the Governor of any progress about the change. For instance, BBC reported the Mandarin Project in Lauriston primary school run by the Chinese teacher; the Mandarin lesson was filmed by both "ITV" and "CNN". This was, of course, on "News Letters" to parents, too. All these send out a message to both school and community: It is right to implement Mandarin into school timetable. Even so, the program assessment was held by the school authority to find the language program was reviewed periodically to ensure quality; and to find the assessment strategies adopted were valid and reliable measures of program outcomes.

At the beginning, some of the Strategic Leadership Team was not happy because she sent the Mandarin teacher to teach Mandarin in local primary school for free. But later the feedback was that the Mandarin project in the primary school became so famous that more primary schools in the district wanted it. Especially one primary school, with which the Principal of my school was trying hard to forge link contacted her asking for help with starting Mandarin lessons. Mandarin now became the ‘ambassador’ of the school. Nobody doubts that it is a waste of money to send the Mandarin teacher to primary schools anymore.

Furthermore, she even made Mandarin earn money for the school. This is also shown in the research by [1]:

“The school authority, school administrators, counsellors and teachers promote the benefits of language learning. Communication documents and activities include information packages for parents and students, open houses, information evenings, brochures, school authority/school Web site, school displays and posters. Student activities may include student clubs, Internet pen pals, field trips and student exchanges. The language taught is visible in the school through the use of signs, bulletin boards, displays, school concerts, extracurricular activities and school announcements”.

She contacted principals or Heads of MFL department she knew. They might want to offer Mandarin Chinese but lacked qualified teachers for some reason. She went to these schools with the Mandarin teachers to deliver taster Mandarin lessons for free. And in the end, the LEA of Westminster agreed to pay my school to send teachers to teach Mandarin Chinese at first in two primary schools. And there are more schools asking for it. Up to now, three schools are paying my school for it. Once again all these factors prove that it is worth the money to invest in this new subject. In summary, as the head of the department, what she fulfilled is establishing policies that support language learning; ensuring that schools implement quality language programs; establishing clear measures of student achievement for target languages; allocating sufficient funds for language learning; developing, authorizing and offering locally developed language programs per provincial policy; and providing professional development opportunities [1]. While what I as a leading Mandarin teaching, reflects, too, what [1] has explored in their research that is “encouraging students to learn the language; stating clearly what students are expected to learn; selecting and implementing appropriate resources for students; assessing and reporting student progress in target languages; pursuing individualized professional development that

will improve the language learning in students; advising on student program placement; providing advice about provincial standards and curriculum; planning methods of communicating with parents and with the public; and reporting to, and communicating with, parents about their students' progress”.

5. DISCUSSION AND IMPLICATION

Though it is still early to say the new change in MFL Department of my formal school is successful. The implementation of Mandarin Chinese into school timetable, however, is proved to be a good start. As a reflection I totally agree with [1] the indicators of an effective school language program:

- *alignment of curriculum, instruction, assessment, resources and reporting of student progress;*
- *student and parent understanding of learning outcomes and student assessment; staff-initiated language projects and ideas that support and improve language learning;*
- *staff voluntarily sharing their knowledge or best instructional practices;*
- *staff cohesiveness, meaningful participation and sense of belonging;*
- *staff responsibility for providing programming that ensures all students have the opportunity to achieve a measure of success;*
- *willingness to critically assess past practices, eliminate barriers and risk trying new strategies or organizational models;*
- *ongoing, regularly scheduled monitoring and adjusting of instructional strategies and program plans to ensure student progress;*
- *setting and modelling high expectations for achievement, conduct and behaviour; targeted professional development to address personal, school and school authority goals;*
- *a focus on language learning in discussions at meetings, in the staff room, in newsletters and at assemblies;*
- *school-initiated processes that collect input from staff, students, parents and the community recognition that meaningful parental involvement contributes to student success frequent, open and clear communication among all members of the learning community.*

Then what does this good start imply? It is more than that they have the courage to take the risk, though there is risk in any change. According to [23], top-down is all right under certain conditions. The success of my school lies in the fact that they have a principal and a Head of MFL Department who understand the implementation and

fully support it. And this change, which has a clear, well-structured approach, was also tied to a “local need”. As the Head of the MFL department puts it “many pupils in my school are already disadvantaged by birth, family background, income and race. If learning Mandarin means future possible employment opportunity, why should we hesitate?”.

According to [27] and [28], evaluating the change right from the beginning and a review of the school’s current state as regards it are also essential. Before you start to implement the change, ask yourself “Is the proposed change necessary at this time? Can the proposed change be properly resourced? Are additional resources required? What will be the benefits of the proposed change? How will these be monitored and evaluated?” And it is also important to think about the potential resistance and can you overcome them and in what way? The thinking maps provide some systematic and reliable information that can be used as a basis for action [29].

More importantly, in gauging the success of the implementation process, it is a good idea to continue to compare the current Chinese teaching program to the characteristics of the so-called successful language program discussed earlier. More and more of these characteristics should become apparent as the implementation process proceeds. All new programs are likely to experience some bumps during the implementation stage. Over time, these should resolve themselves and the confidence and comfort level of all stakeholders should increase. Continued improvement is the result of a continuous cycle of planning, implementing, monitoring, assessing and revising. As each goal is reached, an existing goal is expanded or a new goal is established, and the cycle continues to generate positive change and improvement. Individuals may incorporate the cycle of continuous improvement into their professional practices as efficiently as schools incorporate it into the teaching and learning environment [1].

COMPETING INTERESTS

Author has declared that no competing interests exist.

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Julianne Wai-Yin Wong, Canon Tong and Anthony Wong,
International Graduate School of Business,
University of South Australia, Australia,
Business, Government and Law, University of Canberra, Australia,
Department of Business Administration,
Caritas Institute of Higher Education, Hong Kong

The Mediating Effects of School Reputation and School Image on the Relationship between Quality of Teaching Staff and Student Satisfaction in Higher Education in Hong Kong

1. INTRODUCTION

It is clear that as a result of Hong Kong's higher education sector rapidly expanding, the question of how students see their learning institutions is assuming an increasing significance for stakeholders. The aim of this research was to find out through student perception, the mediating effect of school reputation and image on the relationship between quality of teaching staff and student satisfaction in Hong Kong's higher education sector.

Accordingly, the research investigated the respective influences of quality of teaching staff, school reputation and school image on student satisfaction; and examined possible mediating effects of school reputation and image on the relationship between the quality of teaching staff and student satisfaction.

Full-time students of higher education institutions and universities in Hong Kong were selected as the targeted participants in this research because, according to [1,2] they are the primary customers of higher education in today's competitive consumerist society.

1.1 Background of the Study

Quality assurance (QA) in higher education is receiving an increasing attention in many parts of the world as a result of the rapid expansion of this

sector and subsequent to recent education reforms, incurring thereby a need for the sector to respond to these changes as well as to the trend of globalization, in order to meet the expectations of communities as they develop into knowledge-based societies. It is almost a universal consensus that, in the concept of quality in the context of higher education is multifaceted, value laden and stakeholder-relative [3]. The nature of quality and its assurance has been taken up recently in the academic and professional literature, and new interpretations proposed [4,5] with various approaches to QA, such as total quality management [6,7], external quality monitoring (EQM) [8] and performance indicator [9,10] even practiced. A recent review of these approaches conducted by [1] has indicated that as one moves from the higher levels towards the lower levels, quality indicators that are of importance change and have a tendency to get softer, signifying that they are much more subjective than the quality indicators at the higher levels, such as students' attrition rates, and are more related to student experience, such as the quality of teaching and learning and student satisfaction with their various experiences.

1.2 The Higher Education in Hong Kong

Like many other jurisdictions, Hong Kong has been undergoing various education reforms, especially in the past five years, to respond to the trend of internationalization and globalization [11]. With the launch of the Qualifications Framework (QF) in 2008 by the Education Bureau in Hong Kong, the concern about the quality of different qualifications in the vocational and academic sectors is becoming even more explicit. Furthermore, the number of self-financing degree-awarding tertiary institutions in Hong Kong has increased to six, providing a total of over 13,000 places. With the rapid expansion of post-secondary education in Hong Kong, it has become necessary to address the question of quality of the academic provisions concerned [12]. The volume and diversity of the student body inevitably imposes different challenges on educational institutions.

Hong Kong's higher education institutions, particularly the publicly funded ones, are increasingly under public pressure to demonstrate and account for their educational quality unambiguously and distinctly. However,

the QA practices as currently adopted are more included towards an accountability-led view rather than an improvement-led view. Therefore, resources and efforts in many institutions have typically been committed more to the institutional aspects of the quality issues. Consequently, insufficient attention is paid to the student aspects, in particular students' experiences of various facets of their academic lives, which should be of paramount concern in the recent education reform of most countries, notably for the post-secondary sector in which a substantial expansion of student participation has been taking place. In the course of debates over various quality issues for higher education, a major focus of this research is the centrality of the student perception. This research is therefore conducted with the aim of finding out the mediating effects of school reputation and image on the relationship between quality of teaching staff and student satisfaction from the students' perspectives.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The following provides an overview of the literature concerning the higher education sector in Hong Kong and investigates the roles of and relationships among different marketing concepts, in particular the concepts of quality, reputation, image and satisfaction in higher education provisions.

2.1 The Higher Education Market in Hong Kong

The Chief Executive of the Hong Kong Special Administrative Region (HKSAR) pledged in his 2009-2010 Policy Address to invest in "education services....to enhance Hong Kong's status as a regional education hub" [13]. The objective was to strengthen the competitiveness of Hong Kong's education sector, enabling it to better capture the opportunities spawned by the enormous global demand for higher education [11].

To the existing institutions of higher learning, these initiatives hold both opportunities and challenges. Enrolment is expected to soar as lifelong learning and increased intake of non-local students allow the institutions to widen their net and at the same time to expand beyond their home market. However, the government's policy to encourage greater private sector involvement in higher education implies that the status quo will be destroyed and the existing

institutions will be put into direct competition with both new and established education providers from home and abroad [11].

Sitting on this cusp of tremendous change, it seems obvious that no institutions of higher learning can now extricate itself from participating in market competition. To operate as market competitors, higher education institutions have to do more than just produce glossy brochures and stage expensive advertising campaigns. They, like any marketers in a competitive market, are required to consider what their customers need and perceive as good [14]. Although a multitude of factors have been found to contribute to student satisfaction subject to the specific segments of the higher education market under study, quality of teaching staff, school image, and reputation are the three most prominent drivers [15,16].

2.2 Quality Assurance in the Higher Education in Hong Kong

From quality as a process emerges the concept of quality assurance (QA), which is a process-oriented system to ensure that the pre-defined standards of an organization are met and best practices or procedures are complied with [17,18,19]. It has become a trend in higher education provision across the world that QA initiatives be advocated and followed through to ensure quality of activities and continuous improvement [20]. In Hong Kong, QA is gaining prominence in the higher education sector due to, inter alia, the reform and rapid expansion of the education service in recent years, the urgent need to respond to the challenges of globalization, and the rising expectations of stakeholders [21,22].

The underlying principle for implementing QA in the education sector is to ensure that the main actors at the forefront of teaching and learning (school administration, teachers, students, parents and governing bodies) are committed to improving education performance and at the same time are given the means to see that the educational improvement objectives are implemented and fulfilled effectively [23,24].

2.3 Quality of Teaching Staff

Research reveals that students value good teaching and that teaching quality is directly related to students' perception of the quality of the high

order learning provided [25,26]. However, quality of teaching, like quality in general, is an elusive abstraction. Though different techniques and tools have been proposed to evaluate teaching quality, it remains challenging to identify all the traits of quality teaching, let alone assess the quality of an individual's teaching [25,26].

As [27] argued, to maintain or improve the quality of teaching, the teaching staff needs to develop and excel in these capabilities. [28] pointed out that there are four essential traits of good teaching: positive classroom climate, interest in learning, lesson organization, and clarity. The literature underlines the importance of knowledge, teaching skills, teacher sensitivity to student level and progress, clear teaching goals, fair assessment, and encouragement of independent thinking. And, in addition to pedagogical skills, good teachers need to have passion and demonstrate strong enthusiasm for their students, for the subject they teach and for teaching itself [29].

2.4 Student Satisfaction

One of the leading indicators of competitiveness in higher education provisions is the level of satisfaction of a student with regard to his/her experience from a particular institution [30]. Prior studies have given some slightly different definitions to the concept of student satisfaction. For example, [31] define student satisfaction as a "student's perceived value of his or her educational experiences at an educational institution". [32] define student satisfaction as "an evaluative summary of direct educational experience, based on the discrepancy between prior expectation and the performance perceived after passing through the educational cycle". [33] defined student satisfaction "as emotional or cognitive response or reaction to the learning experience". Although the definitions vary slightly from one to another, the common focus is on measuring a student's ex post evaluation of educational experiences. In this sense, these definitions can be regarded as rooted in the earlier definition of satisfaction developed by [34].

According to [35], student satisfaction is a perceived value. This perceived value is the outcome, the difference between expectation and perception, of the student's scrutiny of the value delivered by an educational institution. According to the expectancy disconfirmation theory [34,36], feelings

of satisfaction or dissatisfaction arise when one compares his or her expectations before a transaction with his or her perceptions after the transaction. In the context of higher education, if a student's perceptions exceed his or her expectations (a positive disconfirmation), student satisfaction may arise. On the contrary, if a student's perceptions fall short of meeting his or her expectations (a negative disconfirmation), student dissatisfaction may arise [34,37].

2.4.1 Quality of teaching staff on student satisfaction

In marketing, service quality and satisfaction are two discrete but highly interrelated concepts [38]. While a plethora of research has highlighted the importance of product/service quality in driving customer satisfaction [14,34,39], some scholars argue that satisfaction is the antecedent of quality [40]. Nevertheless, empirical findings conclude service quality causes satisfaction [41]. Service marketing tenets indicate the difficulties in delivering consistent quality of service in order to satisfy customers [42,43,44,45]. The inconsistency due to its innate characteristics of inseparability, heterogeneity, intangibility, and perishability are applicable in relation to the quality of teaching at educational institutions. The inseparability of the delivery from consumption of the service is apparent in teaching as more than just the teaching material provided to the students; the style of delivery and explanation of the content is essential to a student's understanding. It is evident that teaching style differs from teacher to teacher, as does the style, the material provided, the knowledge delivered, and even body language differs. Total satisfaction can be a challenge to achieve as the acceptance of delivery style by one student can differ from another. However, in examining the teaching quality and student satisfaction linkage in a Canadian university, [46] used two separate sets of student samples (70 undergraduate students and 94 MBA students) to investigate the influence of a six teaching quality dimensions on student satisfaction in terms of course offerings and instructors. The results indicate that teaching quality strongly influences student satisfaction by showing that the quality dimensions explained 74% of student satisfaction with the course and 67% of student satisfaction with the instructors.

It is expected that a similar causality may exist in Hong Kong's higher education sector. Therefore, it is hypothesized that:

Hypothesis 1. The quality of teaching staff as perceived by students positively affects student satisfaction.

2.5 School Reputation in Higher Education

In the higher education environment, students may form a perception about their institution and the specific course offerings. Similar to reputation in the business setting, an institution's reputation hinges on deeds done in the past. If the institution "repeatedly succeeds in fulfilling its promises, it should have a favourable reputation, and inversely its expressed intentions may create a negative reputation" [47]. A positive and long-standing school reputation is also a strong indication of its high levels of quality and competence. [47] posited that "Institutional reputation may be viewed as a mirror of the organization's history that serves to communicate to its target groups the quality of its products or services in comparison with those of its competitors". This quality may be reflected in the school's capacity in meeting the expectations of the students, including their expectations for teaching staff of high professional caliber and for teachers who demonstrate characteristics of good pedagogical practice.

In addition, in the business sector, a good corporate reputation reduces customers' uncertainty in making buying decisions, boosts demand and helps a reputable firm to sell more to achieve its ultimate goal of profit maximization [48]. In higher education, a good school reputation also enhances the prestige of an institution and mitigates students' uncertainty in making enrolment decisions. However, contrary to workings in the business world, high levels of school reputation often lead to minimal sales. College aspirants will flood the most prestigious institutions with applications, but the majority of them will likely be disappointed since the supply of programmes is highly inelastic. In business transactions, customer satisfaction may turn into dissatisfaction and hurt the reputation of an institution if student demands cannot be adequately met for a long time [49]. Consequently, education institutions have to work hard to maintain their reputation and credibility. However, in the educational setting, the stricter the admission criteria and the

tougher the competition, the stronger will be students' desire to be admitted and the higher will be the school reputation [50].

2.5.1 Quality of teaching staff and school reputation

Though the link between quality of service and reputation of the service providers is well established in various sectors of the service industry [51,52,53], it is still unclear whether a similar positive association exists between quality of teaching staff and school reputation. In the higher education arena, there is a growing production of perceptual ratings or league table rankings of higher education institutions [54]. To gain a deeper understanding of the interplay between the constructs of teaching quality and reputation in higher education, the present research attempts to establish by empirical analysis whether there is a direct relationship between the two constructs in the higher education setting in Hong Kong. School reputation is measured by a 3-item scale developed by [47] to assess the perceived competence of an institution in delivering what it has promised, and the respondents' overall perception of school reputation and school competitiveness. It is therefore hypothesized that:

Hypothesis 2. The quality of teaching staff as perceived by students positively affects their perception of school reputation.

2.6 School Image in Higher Education

Image and reputation are two closely intertwined concepts. There has been much debate in the literature about the relationship between the two. [55] pointed out that there is disagreement among scholars on how the two concepts be defined and distinguished from one another. Some scholars, for example, [56] suggested that image should be subsumed within reputation, arguing that image is just one of the many components of reputation [55]. Despite the different arguments, there appears to be a general agreement among scholars participating in the debate that image is distinguished from reputation in that the former is influenced by the everyday encounters between an organization and an outsider. It is concerned with the outsider's impression of an organization and is likely to be influenced by things such as the name, logo, building, or even the uniform or dressing styles of the staff members of a particular organization [57]. Reputation, on the contrary, is forged

out of the more fundamental values of leadership, competitiveness, expertise, product and service philosophy, culture, and ethics which take a long time to cultivate and grow.

In the higher education setting, it is clear that school image is becoming increasingly important. To attract good students in the globalized higher education market and in order to maintain their profile and competitiveness, institutions across the world have taken a proactive attitude towards image building [58]. Despite this, school image remains an unclear concept and the definitional dispute is often resolved by drawing strength from the established conceptions and theories in business marketing [49]. Following this line of thinking, the present research defines school image as the ideal impression that a higher education institution would like others to see. The image of an institution is measured by a 3-item scale developed by [47] to assess the respondents' general perception, their estimation of the perception of their peers, and the perceived image of their own institution relative to other institutions.

2.6.1 Quality of teaching staff and school image

Prior studies on product or service marketing have confirmed the positive role that image plays on product/service advantage and competitiveness [59]. Moreover, the above-mentioned inherent characteristics of service present more challenges to build and sustain school image [42,43,44]. The intangibility, perishability, heterogeneity and inseparability of service make its image more vulnerable to variance in teaching quality, as image takes time to establish and consistency is one of image's most important requirements [43,60]. Research on corporate image has established that product/service quality is one of the key determinants of good image [61]. It is expected that a similar causality may also exist in the higher education sector as quality of teaching has a lot to do with building up a favourable impression in the minds of the students. Therefore, it is hypothesized that:

Hypothesis 3. The quality of teaching staff as perceived by students positively affects their perception of school image.

2.7 School Reputation and Student Satisfaction

Firm reputation, customer satisfaction and the link between these two constructs is a relatively well-researched domain in management studies [62,63]. There is an abundance of empirical research, primarily from the perspective of marketing, which demonstrates the casual link between the two concepts [64,65]. While prior studies on non-education service settings report a positive influence of customer satisfaction on firm reputation [65], some other studies demonstrate that the casual relationship is reserved [64,66,67]. The contrary findings have led some scholars to conclude that the two concepts are in fact interrelated and mutually interdependent [63,68].

The relationship between school reputation and student satisfaction in the higher education market is a relatively understudied area of research, as treating students as customers is, after all, relatively new and controversial [69]. Besides, the student-institution relationship is growing in complexity due to massification and globalization of higher education [49]. Nevertheless, as more college aspirants are given access to more choices of institutions nowadays, school reputation is becoming an increasingly important factor in their enrollment decisions. For those who have made it to the best schools, the satisfaction is beyond words. Therefore, it is hypothesized that:

Hypothesis 4. The reputation of a higher education institution as perceived by students positively affects student satisfaction.

2.8 School Image and Student Satisfaction

Some prior studies have found that brand image exerts a positive influence on customer satisfaction [39,70]. Other studies, however, claim that no such link exists. For example, in their study of the image and satisfaction link in the banking industry, [71] found that there is no direct influence of brand image on customer satisfaction. [72] conducted a three-year longitudinal study on various service sectors and confirmed the positive influence of image on customer satisfaction. They found that the influence of image on customer satisfaction increased over the three-year time span. In other words, the lack of influence of image on customer satisfaction as revealed by previous studies might simply be due to time lag or the existence of other factors mediating the relationship.

Although prior research has given moderate support to the influence of image on customer satisfaction in various service settings, this research proposes to extend the research scope to explore whether there is any positive influence of school image on student satisfaction. Therefore, it is hypothesized that:

Hypothesis 5. The image of a higher education institution as perceived by students positively affects student satisfaction.

2.9 Mediating Roles of School Reputation and Image

School reputation and image are presented as mediators, as it is postulated that the direct relationship between QTS and student satisfaction is intervened by these variables. Mediation is the effect of an independent variable on a dependent variable that goes through one or more third variables [73,74,75,76]. The effect of mediation was recognized as early as 1928 but in recent years various tests have been introduced to identify the exact nature of the mediation impact [73,75,76,77]. These interventions are recognized in the literature based on well-rooted theoretical and logical arguments. This research recognizes reputation and image as simple mediators that intervene the effect of OTS on SS separately [63,68,71,78].

Students' perception of school reputation is the first mediator proposed in the present research. As discussed above, quality of teaching staff is hypothesized to have a positive influence on student perception of school reputation as well as image, and student perception of school reputation and image positively influence student satisfaction. Therefore, it is hypothesizes that:

Hypothesis 6. Student perception of the reputation of a higher education institution mediates the relationship between quality of teaching staff and student satisfaction.

Student perception of school image is the second mediator proposed in the present research. As discussed above, quality of teaching staff is hypothesized to have a positive influence on student perception of school reputation, and student perception of school image is also hypothesized to have a positive influence on student satisfaction. Therefore, it is hypothesizes that:

Hypothesis 7. Student perception of the image of a higher education institution mediates the relationship between quality of teaching staff and student satisfaction.

2.10 Research Model

Seven hypotheses have been developed based on the literature on the marketing concepts of quality, satisfaction, reputation and image, and the corresponding concepts in the higher education market. Based upon the seven hypotheses developed, a research model (Fig. 1) was devised by adapting the following sets of constructs from prior studies.

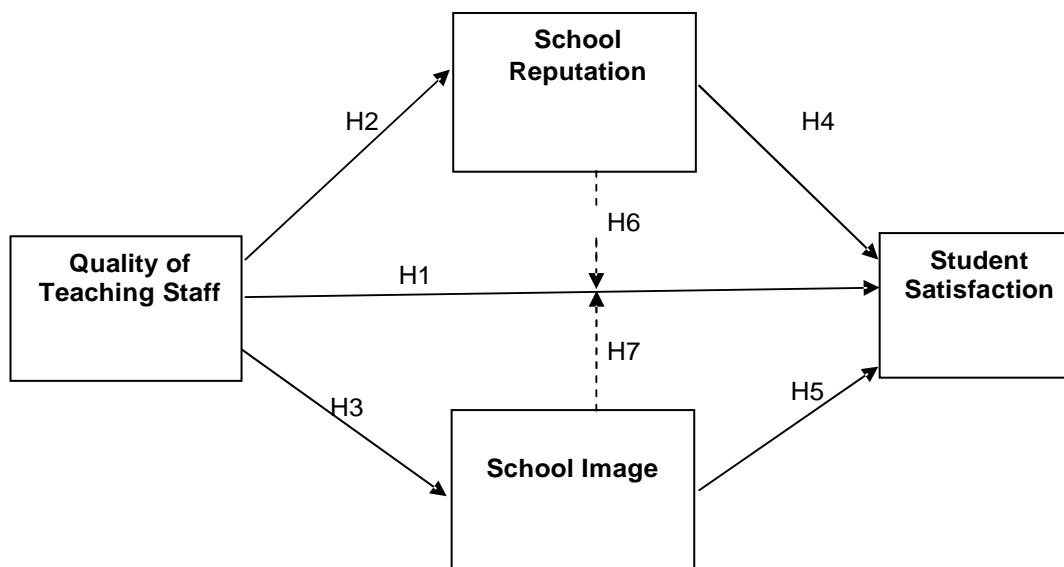


Fig. 1. Research model

The research framework shown above consists of four constructs, with one dependent variable named student satisfaction, two independent variables (which also act as two mediating variables) named school reputation and school image respectively and one independent variable named quality of teaching staff.

3. METHODOLOGY

3.1 Sample

Full-time students enrolling in diploma or degree programmes at various levels in all institutions offering post-secondary programmes in Hong Kong were selected as the target population. This population served the

purpose of the research, which was to explore the perception of full-time students of higher education on the mediating effects of school reputation and school image on the relationship between quality of teaching staff and student satisfaction. This research adopted a probability sampling technique in which samples were acquired by random selection so that each individual within the population has an equal opportunity to be selected. In this research, the researcher drew sample data of a database extracted from two major public domain directories of higher education institutions in Hong Kong: The University Grants Committee and the Education Bureau, in which consist of the point of contact at every post-secondary institutes in Hong Kong. A total of 2,000 copies of the questionnaire were sent to nine institutions of higher education in Hong Kong. By the end of the survey period, 1,170 responses had been received, representing a response rate of 58.5%. Of the 1,170 responses received, 32 were invalid due to missing data, giving a total of 1,138 valid responses.

3.2 Research Instruments

From the literature review, the following four constructs were identified for this research: Quality of Teaching Staff as the independent variable mediated by the constructs of School Reputation and School Image as mediating variables affecting the construct of Student Satisfaction as the dependent variable.

3.2.1 Quality of teaching staff

There is evidence that teaching quality of staff can be further enhanced through student feedback with additional consultation, interpretation guides on result and other relevant arrangement. This can also form part of the staff development for improvement [79,80,81]. The following measuring items are used according to [34,82,83]. The measuring items for Quality of Teaching Staff are shown in Table 1.

3.2.2 School reputation and school image

According to [84], institutional reputation is a sum total of a single stakeholder's perception of how well organizational responses are meeting the demands and expectations of many organizational stakeholders. The repu-

tation of an organization is built through its credible actions [85]. School reputation and school image were therefore intended to measure the reflection of quality and services by studying the following three constructs: (a) impression, (b) reputation, and (c) comparative advantage. The measuring items for School Reputation and School Image are shown in Table 2 and Table 3.

3.2.3 Student satisfaction

The measuring items for Student Satisfaction are adopted from Bennett and Rundle-Thiele, 2004; Oliver, 1980 and are listed in Table 4.

Table 1. Measuring items for quality of teaching staff (Adapted from [82])

ID	Questions (Constituent variables)
TS01	The teaching staff of my institution have appropriate academic credentials. (Academic Credentials)
TS02	The teaching staff of my institution are incorporating appropriate use of technology to teach. (Appropriate Use of Technology)
TS03	The teaching staff of my institution are effective communicators in the process of lecturing. (Aware of Learning Needs)
TS04	The teaching staff of my institution are aware of my learning needs and I can seek assistance from them. (Approachable and Friendly)
TS05	The teaching staff of my institution are approachable and display a friendly manner. (Approachable and Friendly)
TS06	The teaching staff of my institution treat students with respect. (Respect Students)
TS07	The teaching staff of my institution display positive attitudes to students and do their best to help. (Positive Attitude)
TS08	The teaching staff of my institution display empathy when I have difficulty in understanding a concept. (Display Empathy)

Table 2. Measuring Items for school reputation (Adapted from [47])

ID	Questions (Constituent variables)
SR1	In general, I believe that my institution always fulfils the promises it makes to its students. (Honouring Promise)
SR2	My institution has a good reputation. (Good Reputation)
SR3	I believe that the reputation of my institution is better than other institutions. (Better Reputation than Others)

Table 3. Measuring items for school image (Adapted from [47])

ID	Questions (Constituent variables)
SI1	I have always had a good impression of my institution. (Good Impression)
SI2	In my opinion, my institution has a good image in the minds of its students. (Good Image)
SI3	I believe that my institution has a better image than other institutions. (Better Image than Others)

Table 4. Measuring items for student satisfaction (Adapted from [34,83])

ID	Questions (Constituent variables)
SS1	I am satisfied with my decision to attend this institution. (Satisfied with Decision)
SS2	If I had a chance to do it all over again, I would still enrol in this institution. (Convicted in Decision Made)
SS3	My choice to enrol in this institution was a wise one. (Wise Choice)
SS4	I am happy with my decision to enrol in this institution. (Happy with Decision)
SS5	I did this right decision when I decided to enrol in this institution. (Right Decision)
SS6	I am happy that I enrolled in this institution. (Happy on the Course)

3.3 Data Analysis

The collected data were analyzed by the following quantitative methods.

3.3.1 Measurement assessment

The validity and reliability tests were used to evaluate the quality of the data that collected for assessment of the constructs for further analysis. Cronbach's coefficient alpha (α) was adopted to assess the internal consistency reliability in order to determine if the homogeneity of the items in the instrument are highly correlated and support the construct. Cronbach's coefficient alpha (α) has a maximum value of 1.0. Therefore, the higher the coefficient approaches 1.0, the more reliable are the measures. [86] suggested that the minimum requirement of Cronbach's coefficient alpha (α) is 0.6.

3.3.2 Factor analysis

Exploratory Factor Analysis (EFA) is used in this research as the factor analysis technique to explore the underlying structure of a collection of observed variables. Although the constructs of this research adapted from previous studies with satisfactory level of reliability, EFA is conducted in order to ensure the appropriateness of the measurement constructs for the collected data.

3.3.3 Hypotheses testing

In this research, linear and multiple regression analysis were conducted to test both direct and indirect influences of the independent variable of quality of teaching staff, and the two mediators: school reputation and school image, on the dependent variable of student satisfaction. Linear regression was used

to test the direct influence of quality of teaching staff, school reputation and school image on student satisfaction. Each of the eight quality of teaching staff dimensions was also tested independently using regression analysis to ascertain their respective influences on student satisfaction. A mediator influences the strength and direction of an independent variable on a dependent variable. The effects of the two mediators in this research, school reputation and school image, were tested with multiple regression analysis and a mediating effect was considered existent if the multiplicative term, school reputation times quality of teaching staff or quality of teaching staff times school image, was statistically significant [76].

4. FINDINGS

4.1 Characteristics of the Sample

Table 5 below shows the characteristics of respondents in respect of gender, marital status, age, and education level. Each of these characteristics are benchmarked and compared with the characteristics of Hong Kong’s adult population.

Table 5. Demographic profile of valid respondents (n = 1138)

		Respondents	
		Frequency	Percentage (%)
Gender	Male	431	37.9%
	Female	707	62.1%
Age	18 – 21	854	75.0%
	22 – 25	269	23.6%
	26 – 29	15	1.3%
Level of Study	Associate Degree	448	39.4%
	Higher Diploma	409	35.9%
	Undergraduate	262	23.0%
	Others	19	1.7%
Years of Study	1 year or less	377	33.1%
	2 years	394	34.6%
	3 years	280	24.6%
	4 years or above	87	7.6%

4.2 Validity and Reliability Test

Factor analysis and Cronbach’s alpha are generally recognized as the most popular validity and reliability approaches to test the quality of the collected data [87,88]. In this research, exploratory factor analysis was used to extract the underlying variables [88,89] and Cronbach’s alpha test was

conducted to verify the internal consistency of the questionnaire items loaded into each underlying variable extracted [89,90]. In line with [89], questionnaire items of an underlying variable with a Cronbach's alpha value of 0.7 or higher suggest high reliability, while those with a Cronbach's alpha value not less than 0.6 are acceptable for statistical testing.

4.2.1 Exploratory factor analysis

As all the measuring scales for each of the hypothesized variables in this research were adapted from prior studies published in peer reviewed journals, it was considered reasonable to assume that the validity of the measuring scales were established by the researchers concerned and the reviewers prior to publication. However, given that the wording was fine-tuned to suit the special needs of this study, in order to ensure that the touch-up would not affect the quality of the measuring scales; exploratory factor analysis was performed to confirm the validity of the questionnaire [89,91].

Table 6 below shows KMO and that Bartlett's test outcome to ensure the data collected meets the assumptions for EFA. The KMO measure of sampling adequacy is 0.955 which is roughly the same of the minimum acceptable level of 0.96 [88,89], indicating excellent sampling adequacy. Meanwhile, Chi-square value of 15751.725, $df=190$ and $p\text{-value} = 0.0001$ ($p<0.05$), shows identity matrix does not exist in the data collected for this research. Finally, the number of items used in total is $k = 20$ and the sample size $n=1,138$, thus $n/k = 1,138/20=57$; which is greater than 5.

Table 6. KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		.955
Bartlett's Test of Sphericity	Approx. Chi-Square	15751.725
	Df	190
	Sig.	.000

Table 7 shows a pattern matrix that shows all the items are in their corresponding components. Thus, all items used to measure the constructs for this research were validated as satisfying the convergent and discriminant validity.

Table 7. Exploratory factor analysis on the constructs (n = 1138)

Questionnaire Items	Component			
	1 (SS)	2 (QTS)	3(SI)	4(SR)
Student Satisfaction				
SS1	0.924			
SS2	0.883			
SS3	0.882			
SS4	0.879			
SS5	0.843			
SS6	.731			
Quality of Teaching Staff				
TS1		0.826		
TS2		0.818		
TS3		0.810		
TS4		0.799		
TS5		0.795		
TS6		0.704		
TS7		0.685		
TS8		0.675		
School Image				
SI1			0.859	
SI2			0.853	
SI3			0.687	
School Reputation				
SR1				0.863
SR2				0.769
SR3				0.684

Table 8 below shows a total of 71.08% of variance in responses to the items posted in the questionnaire. Amongst this, 47.32% of variance was explained by component 1 or student satisfaction, 13.34% explained by component 2 or quality of teaching staff, 6.70% explained by component 3 or school image, and 3.72% explained by school reputation. The balance of 28.92% of information that measures the constructs was lost during the data collection effort.

Table 8. Total variance explained by QTS, SS, SR and SI

Component	Initial Eigenvalues			Extraction sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
SS	9.465	47.323	47.323	9.465	47.323	47.323
QTS	2.667	13.336	60.660	2.667	13.336	60.660
SI	1.341	6.704	67.364	1.341	6.704	67.364
SR	.743	3.716	71.080	.743	3.716	71.080

4.2.2 Cronbach’s alpha for reliability testing

Cronbach’s alpha tests were conducted to measure the level of internal consistency among the items in each of the four variables of QTS, SS, SI and SR [89]. Table 9 below shows the Cronbach’s alpha value for these constructs

with range from 0.860 to 0.940, indicating that the measuring scales are reliable and the data have good internal consistency for further analysis [89].

The measurement scales in the questionnaire were reliable and the data collected from the nine institutions of higher education had sufficient reliability and validity for hypothesis testing and further investigation. Prior to hypotheses testing, the scores of the four underlying variables of QTS, SS, SR and SI, were summated [88,89].

Table 9. Cronbach's alpha values of variables

Variable	Cronbach's alpha	Number of items
QTS	0.906	8
SS	0.940	6
SR	0.804	3
SI	0.860	3

4.3 Hypothesis testing

The seven hypotheses developed were tested using simple and multiple regression analysis.

4.3.1 Direct relationships

As hypotheses H1 to H5 are based on simple linear regression (SLR) analysis and are essential in determining the eligibility of mediating constructs, these were tested as follows.

H1: The quality of teaching staff as perceived by students positively affects student satisfaction.

Table 10. Coefficient table for the relationship SS – QTS

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	β	Std. error	Beta		
(Constant)	8.713	.962		9.057	.000
QTS	.486	.023	.524	20.751	.000

a. Dependent Variable: SS

Table 10 above shows $t=20.75$, $p\text{-value}=0.0001$ ($p\text{-value}<0.05$), indicating the significant influence of QTS on SS. The $\beta=0.49$, a positive value, specifying the direction of QTS and SS are the same. Thus, H1 is supported.

H2: The quality of teaching staff as perceived by students positively affects their perception of school reputation.

Table 11. Coefficient table for the relationship SR – QTS

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	β	Std. error	Beta		
(Constant)	5.022	.500		10.053	.000
QTS	.205	.012	.447	16.854	.000

a. Dependent variable: SR

Table 11 above shows $t=16.85$, $p\text{-value}=0.0001$ ($p\text{-value}<0.05$), indicating the significant influence of QTS on SR. The $\beta=0.205$, a positive value, specifying the direction of QTS and SR are the same. Thus, H2 is supported.

H3: The quality of teaching staff as perceived by students positively affects their perception of school image.

Table 12. Coefficient table for the relationship SI – QTS

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	β	Std. error	Beta		
(Constant)	5.517	.516		10.702	.000
QTS	.197	.013	.421	15.663	.000

a. Dependent variable: SI

Table 12 above shows $t=15.66$, $p\text{-value}=0.0001$ ($p\text{-value}<0.05$), indicating the significant influence of QTS on SI. The $\beta=0.197$, a positive value, specifying the direction of QTS and SI are the same. Thus, H3 is supported.

H4: The reputation of a higher education institution as perceived by students positively affects student satisfaction.

Table 13. Coefficient table for the relationship SS - SR

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	β	Std. error	Beta		
(Constant)	11.398	.637		17.886	.000
SR	1.276	.047	.631	27.401	.000

a. Dependent variable: SS

Table 13 above shows $t=27.40$, $p\text{-value}=0.0001$ ($p\text{-value}<0.05$), thus SR is a significant construct influencing SS, The $\beta=1.276$, a positive value, specifying the direction of SR and SS are the same. Thus, H4 is supported.

H5: The image of a higher education institution as perceived by students positively affects student satisfaction.

Table 14. Coefficient table for the relationship SS - SI

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	β	Std. error	Beta		
(Constant)	10.930	.619		17.656	.000
SI	1.296	.045	.652	28.993	.000

a. Dependent Variable: SS

Table 14 above shows $t=28.99$, $p\text{-value}=0.0001$ ($p\text{-value}<0.05$), thus SI is a significant construct influencing SS, The $\beta=1.296$, a positive value, specifying the direction of SS and SI are the same. Thus, H5 is supported.

4.3.2 Mediating effects

Multiple linear regression was used to test the mediating effect of school reputation (SR) on the relationship between QTS on SS met, Hypothesis 6 was tested using the following equations.

H6: Students' perception of the reputation of a higher education institution mediates the relationship between quality of teaching staff and student satisfaction.

Table 17 shows $t=20.751$, $p\text{-value}=0.0001$ ($p\text{-value}<0.05$), thus QTS is a significant construct influencing SS; and Table 15 confirms the model fit as $F=430.59$, $df=1, 1136$, $p\text{-value}=0.0001$ ($p\text{-value} < 0.05$).

In Table 16 indicates, $F=505.712$, $df=2, 1135$, $p\text{-value}=0.0001$ ($p\text{-value}<0.05$) whilst Table 18 shows that QTS: $t = 12.54$, $p\text{-value} = 0.0001$ ($p\text{-value}<0.05$), thus, QTS positively and significantly influences SS. SR: $t=20.53$, $p\text{-value}=0.0001$ ($p\text{-value}<0.05$), thus SR positively and significantly influences SS.

In testing H6, the following equations were compared:

$$SS = 8.71 + 0.49 (QTS) + e_1.$$

$$SS = 3.68 + 0.28 (QTS) + 1.00 (SR) + e_2.$$

By using Baron and Kenny's interpretation for testing mediating effects, as in Table 18, $\beta=1.00$ or SR is a significant variable, hence it is a mediator. In addition, $\beta=0.28$ (Table 18) is smaller than $\beta=0.486$ (Table 17), indicating the reduced effect of the independent construct (QTS). As Table 17 shows $\beta=0.28$, so QTS is significant, the mediating effect of SR is deemed to be partial. Thus, H6 is partially supported.

H7: Students' perception of the image of a higher education institution mediates the relationship between quality of teaching staff and student satisfaction.

Table 19 indicates that $F=569.62$, $df=2$, 1135 , $p\text{-value}=0.0001$ ($p\text{-value}<0.05$) whilst Table 20 shows that QTS: $t=13.12$, $p\text{-value}=0.0001$ ($p\text{-value}<0.05$), thus, QTS positively and significantly influences SS in this relationship. Table 20 also shows that SI: $t=22.675$, $p\text{-value}=0.0001$ ($p\text{-value}<0.05$), thus SI positively and significantly influences SS in this relationship.

In testing H7, the following equations were compared:

$$SS = 8.71 + 0.49 (QTS) + e_3.$$

$$SS = 2.96 + 0.28 (QTS) + 1.04 (SR) + e_4.$$

By using Baron and Kenny’s interpretation, Table 20 shows that $\beta=1.042$ or SI is a significant variable, hence it is a mediator. In addition, $\beta=0.28$ (Table 20) which is smaller than $\beta=0.486$ (Table 17), indicating the reduced effect of the independent construct (QTS). As Table 20 shows $\beta=0.28$, so QTS is significant, the mediating effect of SI is deemed as partial mediator. Thus, H7 is partially supported.

Table 15. Model fit for relationship of SS – QTS

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	12434.838	1	12434.838	430.588	.000 ^b
Residual	32806.242	1136	28.879		
Total	45241.080	1137			

a. Dependent variable: SS, b. Predictors: (Constant), QTS

Table 16. Model fit for relationship of SS – SR – QTS

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	21318.212	2	10659.106	505.712	.000
Residual	23922.867	1135	21.077		
Total	45241.080	1137			

a. Dependent variable: SS, b. Predictors: (Constant), SR, QTS

Table 17. Coefficient table for the relationship SS – QTS

	Unstandardized coefficients		Standardized coefficients	T	Sig.
	β	Std. error	Beta		
(Constant)	8.713	.962		9.057	.000
QTS Model	.486	.023	.524	20.751	.000

a. Dependent variable: SS

Table 18. Coefficient table for the relationship SS – SR – QTS

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.	Collinearity statistics	
	β	Std. error	Beta			Tolerance	VIF
(Constant)	3.680	.858		4.291	.000		
QTS	.280	.022	.303	12.542	.000	.800	1.250
SR	1.002	.049	.495	20.530	.000	.800	1.250

a. Dependent variable: SS

Table 19. Model fit for relationship of SS – SI – QTS

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	22662.682	2	11331.341	569.618	.000
Residual	22578.398	1135	19.893		
Total	45241.080	1137			

a. Dependent variable: SS, b. Predictors: (Constant), SI, QTS

Table 20. Coefficient table for the relationship SS – SI – QTS

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.	Collinearity statistics	
	β	Std. error	Beta			Tolerance	VIF
(Constant)	2.964	.838		3.538	.000		
QTS	.281	.021	.303	13.117	.000	.822	1.216
SI	1.042	.046	.524	22.675	.000	.822	1.216

a. Dependent variable: SS

5. DISCUSSION

This research has theoretical importance as it contributes to various features of quality with a research model that describes and predicts the effects of quality of teaching staff, school reputation and school image on student satisfaction. While preceding readings of quality have mainly emphasized on the direct influences of different magnitudes of quality of teaching staff on student satisfaction, this research investigated the complicated relationship among constructs. One of the major results is the different degrees of influence that the quality of teaching staff has on student satisfaction and the interface of these two with the hypothesized mediators. School reputation was found to have a mediating effect on the positive side of quality of staff but the effect was only partially significant. This suggests that institutions with a good reputation may not be solely due to the quality of teaching staff. However, institutions with a poor reputation can be expected to be due to the quality of its teaching staff.

This research also confirms that the quality of teaching staff influences student satisfaction. The impact of quality on some general business settings has been widely analyzed in the literature, but no particular research work has been put on how it can be applied in a pragmatic educational setting. This finding has practical significance for policy setters and administrators of higher education in Hong Kong, because for the last thirty years the higher education in Hong Kong has been dominated by government-funded universities

leaving self-funded post-secondary institutions to struggle for their market share of quality students. One way is for self-funded post-secondary institutions to improve the quality of teaching staff so as to attract more students to enrol in the school. Institutions should take heed that the path to successful education is to go back to the basics of good teaching, using this aspect to build better reputation and image.

The findings of this research confirmed the positive effects of school reputation and school image on student satisfaction. It is also a norm that the majority of secondary school graduates in Hong Kong choose universities or post-secondary institutions based on their brand name and reputation. Self-funded institutions that are less reputable try to attract potential candidates by emphasizing the quality of their teaching and attempt to satisfy students by other means. With this information, higher education administrators may wish to build up the reputation and image of their institution by analyzing potential students' needs and match those needs with programme development and resource capabilities.

Educators need to concern over the quality of the programme, quality of teaching staff, and learning resources caused by the over-enrolment were expressed by stakeholders, including students, staff and alumni in late 2012, which resulted in a University inquiry into the operation of the College and the Institute [92]. Since the incident had attracted public attention and received wide media coverage, the University's reputation and image were seriously affected. The Inquiry Panel made twenty-nine recommendations, eleven of which were related to students' perception of their teaching, learning and resources, seven to the University's governance and image, five to student admission and further studies, and five to the quality of teaching staff. According to the Inquiry Panel, the majority of the teaching staff was part-timers with insufficient experience or administrative support and with a heavy workload. This could have been avoided if management had taken timely action in staff recruitment and had provided adequate administrative support.

The Lingnan incident also lends support to the findings of this research that the quality of teaching staff significantly affects student satisfaction, and that in turn student satisfaction has a highly significant effect on school reputation and school image. Just as [85] opined, while a positive reputation

leads to perceived credibility a tarnished reputation suggests a lack of credibility. As a consequence of the incident, Lingnan University had to change its senior management, including the Dean of the College, in order to re-establish its brand name and regain credibility in the eyes of the public.

The measurement scales for this research met the reliability and validity tests and were borrowed and modified to empirically substantiate the influence of school reputation and school image on quality of teaching staff and student satisfaction by using linear regression techniques. The constructs were based on deeply rooted theory and Cronbach's alpha tests on all constructs met the minimum level of 0.7 as recommended by [89] for highly reliable academic research. Furthermore KMO analysis showed that the samples were more than adequate for this study. Validity tests were based on factor loadings of 0.6167 to 0.791 for most constructs, except for student satisfaction that loaded at 0.700 to 0.828. The latter could be due to the large variances amongst the six questionnaire items on student satisfaction and the fact that it was the only dependent variable of the research.

There are situations in Hong Kong that some universities have to accept less capable students when there are many universities offering undergraduate places to high-school leavers. It will be a challenge to maintain the quality of student intake and some schools need to deploy extra resources to help less capable students reach an acceptable post-secondary education standard. These findings should prompt educators in management roles to give thoughtful considerations to ways in which they can enable students to achieve satisfaction in their post-secondary studies, as the quality of graduating students may be another way of gaining a good reputation and image for post-secondary institutions.

6. LIMITATIONS AND FUTURE RESEARCH

The first limitation of this research is the quantitative research methodology and tools used to examine the relationships among the study's four constructs: school reputation, school image, quality of teaching staff, and student satisfaction. It is highly likely some other constructs may exist that influence or mediate the hypothesized relationships. The relationship of influences displayed by different variables may shed further light on the mediating effects.

The second limitation of the research is that its findings may not be generalizable. Although data were collected from 1,170 respondents, a number that undoubtedly enhanced the quality of the study, the findings were substantially based on the perceptions of students studying sub-degree programmes in Hong Kong. The sub-degree sample may affect the applicability of the findings to other senior year students in undergraduate studies. Future studies could be conducted to determine how generalizable the findings of this research are to students studying other post-secondary programmes in Hong Kong or in other educational jurisdictions.

The third limitation of the research is associated to the finding that the two mediators, school reputation and school image partially influence the relationship between quality of teaching staff and student satisfaction. This finding suggests that the correlations concerned might be more complex than originally hypothesized. It is therefore suggested that a qualitative case study could be used as a primary tool to see how the different issues relate in a dynamic situation.

Based on the findings of this research, a number of recommendations are made for further related research. Firstly, as this research was applied to full-time higher education students in general, it may be useful for future research to concentrate on students of a specific discipline or on part-time students since the majority of post-secondary full time programmes are also offered in a part-time mode. In addition, the research findings revealed that a positive relationship exists between the quality of teaching staff and student satisfaction and confirmed the mediating effect of school reputation and school image. And, since results of the exploratory factor analysis found that school reputation and school image form an underlying ‘school branding’ superordinate variable, more research is needed to fully explore this new variable and its relationship to the independent and dependent variables.

7. CONCLUSION

In order to attract high quality students in the globalized higher education market and remain competitive, educational institutions across the world are taking a proactive attitude towards image building [58]. This research supports the findings of a longitudinal study by [72] confirming the positive

influence of image on customer satisfaction, which increased over the three-year time span of their research. It arrived at a similar finding of image with respect to student satisfaction but over a much shorter duration. This research also provides empirical evidence to show educators and administrators of higher education how important it is to enhance reputation and image through student satisfaction with teaching and learning. Under such circumstances, it is extremely important to cultivate an image-culture based on quality of teaching and not totally on branding parallel with organizational vision and structure, technical infrastructure, collaborative environment, and appropriate training [93]. This research provides help with building an image by having studied the constructs of impression, reputation, and comparative advantage, and confirming the causal relationship between satisfaction and reputation and that the two concepts are interrelated and mutually interdependent. This research also confirmed that satisfaction is the antecedent of quality [40] and that a long-standing and positive school reputation is also a strong indicator of its high levels of quality and competence [47].

The findings provide help with building an image by having studied the constructs of impression, reputation, and comparative advantage, and confirming the causal relationship between satisfaction and reputation and that the two concepts are interrelated and mutually interdependent. However, since this research was carried out exclusively in Hong Kong, further research is required in other jurisdictions to verify the adaptability of the findings.

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Randall W. Gentry,

U.S. Environmental Protection Agency,

Office of Research and Development, Las Vegas, USA

Efficacy of Fuzzy c-Means Cluster Analysis of Naturally Occurring Radioisotope Datasets for Improved Groundwater Resource Management under the Continued Risk of Climate Change

1. INTRODUCTION

Global climate change is recognized as one of the stressors on already over-tapped groundwater systems [1]. Mitigation of impacts due to global climate change requires planning for sustainable use of groundwater systems that is dependent upon a detailed understanding of the storage and flow dynamics of the system. Accurate conceptual models and observational data are needed to understand the complex relationship between groundwater reservoirs and sources and sinks that may alter storage dynamics locally or over larger regional areas. The role of recharge and the importance of better understanding of diffuse versus focused recharge mechanisms as they relate to potential aquifer vulnerability have been recognized in the literature as an important need [2-5]. More recently the focus of the discussion in the literature has been on how groundwater storage may provide a more stable resource under extreme hydrologic variation due to the stress of global climate change [1].

The purpose of this study was to test the hypothesis that fuzzy c-means clustering techniques could identify groundwater system types (confined versus recharge regime) using naturally occurring uranium and thorium decay-series isotopes. The setting for the method testing included three wellfields (Morton, Shaw and Sheahan wellfields) in the Memphis Tennessee, USA area, as shown in Fig. 1.

1.1 Hydrogeology of Case Study Area

The case study application is focused on the Memphis aquifer, formally defined as a part of the Claiborne group within the regional context of the

Mississippi Embayment and has been the focus of numerous studies, with the U.S. Geological Survey being a primary leader in the effort [6,7]. A detailed description of the hydrogeology of the regional Mississippi Embayment and the local county-level scale exists in the literature and is not repeated here for brevity [8-10].

It is important to note that of The Memphis aquifer, defined regionally as a part of the Claiborne group sequence, is the major drinking water resource for western Tennessee, and for many years water resource managers remained concerned about the vulnerability of the system from shallow leakage [6,8]. Of particular interest is the transition from the Quaternary to Late Tertiary age fluvial deposits, which constitute the local regional shallow aquifer system and the Tertiary age Cook Mountain formation that forms the upper confining unit to the Memphis aquifer. Research has shown that there are areas near active wellfields where the clay is known to be thin or absent [11]. The thinning or absence of clay in these areas allows for the direct exchange of recharge fluxes from the shallow aquifer and potentially other near surface features and these have been termed aquitard or confining layer windows [10,12,13].

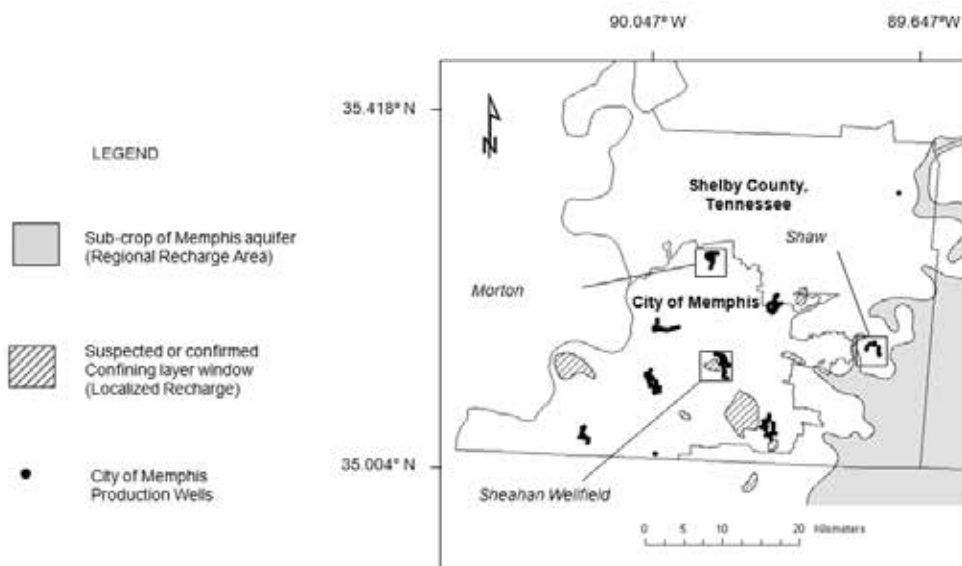


Fig. 1. Geographical extents of regional aquifer area showing wellfields included in the sampling campaign. Figure has been adapted from Gentry et al. [10]; and, Kingsbury and Parks [11]

The focus of more recent research has been on the spatial identification and assessment of the aquifer vulnerability, using modeling and geochemical

techniques, within the localized source water area. A map of the regional study area, local municipal wellfields and the suspected or confirmed confining layer window locations is shown on Fig. 1. The figure also shows the wellfields that were sampled as a focal point of this study.

Previous studies in the literature have identified various mixing regimes and hydraulic fluxes associated with diffuse and focused recharge areas (i.e. through faults, or confining layer windows) to the Memphis aquifer and have sought more efficacious ways of identifying the presence of recharge from a confining layer window through various chemical, isotopic and modeling approaches [8, 10-12, 14-19]. For the purpose of the discussion in this study, three primary recharge types have been considered for identification, shown in Fig. 2, which would likely require differing source water management approaches due to potential vulnerability.

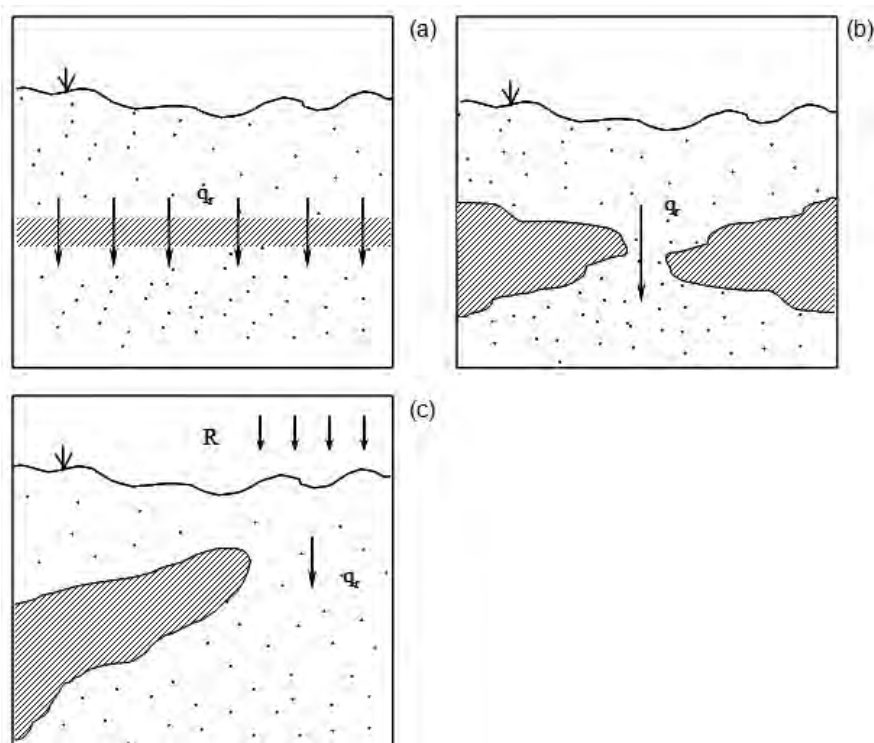


Fig. 2. Example conceptual models for groundwater recharge systems in the regional Memphis aquifer: (a) diffuse uniform recharge through a confining layer; (b) focused recharge through a confining layer window; (c) diffuse recharge through a regional sub-crop zone. Note: As shown, R denotes precipitation, and q_r denotes a volumetric flux over an areal opening to an aquifer, or through a low conductivity matrix

1.2 Uranium and Thorium Decay Series

Uranium and thorium decay series analyses have been used as a valuable tool for the study of groundwater systems. A graphical representation of the relevant decay series is shown in Fig. 3. A good presentation of the early research and a review of the behavior of uranium and thorium isotopes in groundwater can be found in Nimz [20]. Later research by Luo et al. [21], demonstrated that $^{234}\text{U}/^{238}\text{U}$, $^{234}\text{Th}/^{230}\text{Th}$, and $^{224}\text{Ra}/^{228}\text{Ra}$ activity ratios exhibit a strong correlation with aquifer recharge and flow paths. In systems with active groundwater exchange, the movement of radionuclides can be retarded by multiple chemical and physical processes [22].

Luo et al. [21] noted in the study at Idaho National Engineering and Environmental Laboratory (INEEL) that ^{238}U was not entirely free of interactions with the aquifer solids.

Implicit in the literature is that redox conditions can strongly influence the phase or pool in which the isotopes preferentially reside [23,24]. For short-lived radionuclides, sorption and desorption also play an important role [25]. Gentry et al. [10] observed that the Th isotope activities in a semi-confined area of the Memphis aquifer are all similar to those observed from the unconfined (oxygenated) basaltic aquifer at INEEL, Idaho [21] as well as other sandy unconfined aquifers [26]. Tricca et al. [26] hypothesized that the concentration of Th in groundwater was dominated by the chemical solubility of Th minerals. However, as noted in Gentry et al. [10], this hypothesis was not supported by observations of groundwater samples from the Memphis aquifer area with the most likely source for the variance being due to the occurrence of colloids in groundwater [21]. Gentry et al. [10] demonstrated that redox and pH control of uranium behavior can be used to explain the source and mixing behavior in and near a confining layer window. A conceptual model was proposed, where high uranium concentration near-surface waters enter the Memphis aquifer through an aquitard window and due to redox reactions and changes in pH occurring within the redox barrier, uranium is depleted. Downgradient flow paths gain ^{234}U through alpha-recoil mobilization from ^{234}Th , and possible dissolution and precipitation of uranium along reducing flow paths from the confining layer window. The current study provides a more robust testing of differences in uranium and thorium isotope hydrochemical facies across multiple hydrologic recharge regimes.

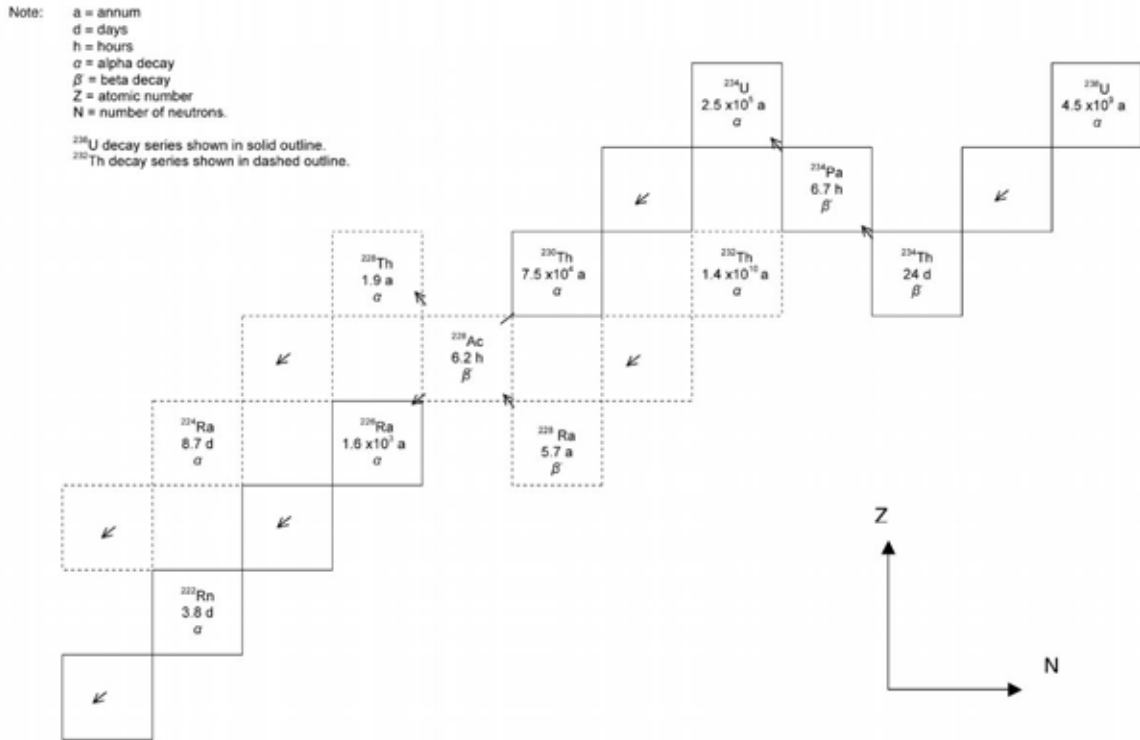


Fig. 3. ²³⁸U and ²³²Th decay series relevant to the study

1.3 Fuzzy c-Means Clustering

For the purpose of describing the approach, the nomenclature and variable definitions used by Güler and Thyne [27] were used for consistency. Building upon the work of Bezdek [28] and Güler and Thyne [27], the FCM technique used multivariate data analysis to partition a dataset, $X = \{x_1, x_n\} \subset \mathbb{R}^p$ (of p -dimensional Euclidean space), into $c \in \{2, n - 1\}$ fuzzy clusters, which are identified by the cluster prototypes, $v_i (i = 1, c)$. The partitioning process is an optimization problem, with the goal of minimizing the following objective function [27]:

$$J_{FCM}(M, C) = \sum_{i=1}^c \sum_{k=1}^n u_{ik}^m \|x_k - v_i\|^2, \tag{1}$$

where, M is the membership matrix, C is the cluster prototypes (centers) matrix, c is the number of clusters, n is the number of data points, and u_{ik} is the degree of membership of sample k in cluster i . If we consider the Euclidean distance (p) as the straight line distance between the datum x_k and cluster prototype v_i , then when p is large, J_{FCM} is minimized. If p is small then the membership value approaches unity [27,29]. m is a weighting exponent that

controls the degree of fuzziness of the classification, such that $m \in (1, \infty)$, with $m = 2$ having been shown to be a widely accepted value [27,30,31]. Elements of the membership matrix, M , are constrained over the range of (0, 1), given the following constraints [27,30]:

$$\sum_{i=1}^c u_{ik} = 1, \quad 1 \leq k \leq n; \text{ and} \quad (2)$$

$$\sum_{k=1}^n u_{ik} < n, \quad 1 \leq i \leq c. \quad (3)$$

As identified in the literature, a two step iteration process is used to minimize J_{FCM} , where C is initialized randomly and M is estimated using the dataset of X , $m > 1$, and C , where the degree of membership and cluster prototypes are calculated as follows [27]:

$$u_{ik} = \left(\sum_{j=1}^c \left(\frac{\|x_k - v_i\|}{\|x_k - v_j\|} \right)^{\frac{2}{m-1}} \right)^{-1}; \text{ and} \quad (4)$$

$$v_i = \frac{\left(\sum_{k=1}^n (u_{ik}^m) X_k \right)}{\left(\sum_{k=1}^n (u_{ik}^m) \right)}, \quad 1 \leq i \leq c. \quad (5)$$

Several stopping criteria for the algorithm have been suggested based upon the relative change in M or the cluster prototypes in subsequent iterations [27,32].

2. METHODOLOGY

The implementation of this study was dependent upon samples collected from production wells in the Memphis aquifer and fuzzy c-means cluster analysis of the U- and Th-decay series data. The details associated with the sampling, analysis and study specific fuzzy c-means algorithm development are provided in the following sections.

2.1 Radiochemical Sample Collection and Assay

As described in Gentry et al. [10] samples were collected from eleven wells with top of screen (TOS) depths ranging from 76 to 236 meters below ground surface (mBGS). In this manuscript we include the data from two

wellfields with differing hydrogeologic conditions (i.e. near the aquifer sub-crop and well-confined with no suspected leakage) that have not been reported in the literature. However, the samples reported in the literature and here were collected at the same time and under the same sampling methodology [10]. For brevity, the radiochemical analysis techniques are not repeated here since they were analyzed at the same time as those reported in the literature using the same conditions and [10, 21,33].

2.2 Fuzzy c-means Cluster Analysis

The theoretical and mathematical basis for fuzzy *c*-means cluster analysis was summarized in equations 1 through 5. For the purposes of implementing fuzzy *c*-means analysis for this study a modified algorithm from Bezdek et al. [34] was used. For specificity the only modifications made to the algorithm were to allow input and output to the computer screen and files, as opposed to older forms of input. In addition, modifications were made for providing run-time diagnostics to assess any failure modes. The modified algorithm allows for differing norms (Euclidean, Diagonal, or Mahalanobis) in the calculation of J_{FCM} , from equation 1. For the purposes of this study, a Euclidean Norm (the identity matrix) was used. Also, for the weighting factor, m in equations 4 and 5, a value of 1.7 was used. Bezdek et. al. [34] suggested that values of $1.5 \leq m \leq 3.0$ would give a good result for most data, and is consistent with Güler and Thyne [27]; and, Hathaway and Bezdek [31]. The algorithm input and output routines were modified and compiled using a FORTRAN 77 standard using Absoft Pro Fortran 7.5 (<http://www.absoft.com>). For the purposes of conducting the fuzzy *c*-means analysis, any data that were non-detect were input as a value of 0.001 which is several orders of magnitude less than detectable levels of U and Th isotopes measured in other samples and their associated uncertainties.

3. RESULTS AND DISCUSSION

Analysis of samples from the Sheahan, Shaw and Morton wellfields were performed, with the results from the Sheahan wellfield having been presented previously in the literature [10]. The results from the U and Th analyses are summarized in Table 1, which also includes the uncertainty associated with each value. All isotopes were detected in all samples except for ^{228}Th , which was non-detectable in select samples.

Table 1. Uranium and thorium decay series analytical results

Well ID	TOS (mBGS)	U-238 (dpm/m ³)	Th-234 (dpm/m ³)	U-234 (dpm/m ³)	Th-230 (dpm/m ³)	Ra-226 (dpm/m ³)	Rn-222 (dpm/kg)	Th-232 (dpm/m ³)	Ra-228 (dpm/m ³)	Th-228 (dpm/m ³)	Ra-224 (dpm/m ³)
Sheahan Wellfield											
87	101.84	43.5 ± 4.3	1.46 ± 0.08	0.137 ± 0.005	0.137 ± 0.005	109.6 ± 0.9	66.3 ± 2.0	0.104 ± 0.010	190.1 ± 0.9	1.448 ± 0.105	298.2 ± 6.5
88	94.54	31.0 ± 3.4	9.31 ± 0.09	0.062 ± 0.003	0.062 ± 0.003	323.9 ± 1.3	110.8 ± 2.6	0.030 ± 0.004	323.9 ± 1.3	nd	1115 ± 15
99	107.92	29.7 ± 3.9	1.04 ± 0.10	0.284 ± 0.018	0.284 ± 0.018	484.1 ± 1.9	75.6 ± 2.1	0.189 ± 0.020	484.1 ± 1.9	nd	653 ± 12
78	124.94	9.6 ± 1.4	1.63 ± 0.08	0.091 ± 0.004	0.091 ± 0.004	136.0 ± 0.7	78.2 ± 2.4	0.038 ± 0.005	136.0 ± 0.7	0.861 ± 0.065	251.9 ± 6.5
95	236.21	12.1 ± 1.3	8.90 ± 0.10	0.072 ± 0.004	0.072 ± 0.004	73.5 ± 0.7	67.6 ± 2.2	0.042 ± 0.006	73.5 ± 0.7	3.673 ± 0.237	124.5 ± 5.3
Shaw Wellfield											
722	167.20	11.8 ± 0.9	2.66 ± 0.09	0.063 ± 0.003	0.063 ± 0.003	594.2 ± 1.9	126.1 ± 3.0	0.032 ± 0.004	1595.1 ± 5.2	nd	2383 ± 19
721	175.71	18.9 ± 6.1	1.82 ± 0.10	0.016 ± 0.001	0.016 ± 0.001	775.9 ± 2.3	46.6 ± 1.6	0.007 ± 0.001	1603.7 ± 5.7	nd	1868 ± 15
704	76.00	17.2 ± 1.8	1.05 ± 0.12	0.015 ± 0.001	0.015 ± 0.001	395.4 ± 1.1	98.5 ± 1.5	0.007 ± 0.001	841.9 ± 2.8	nd	1400 ± 10
Morton Wellfield											
619	100.62	14.5 ± 1.6	2.28 ± 0.18	0.036 ± 0.004	0.036 ± 0.004	65.5 ± 0.6	70.3 ± 1.5	0.019 ± 0.005	103.0 ± 1.4	0.261 ± 0.072	129.4 ± 5.4
604	201.55	13.0 ± 2.2	2.34 ± 0.23	0.101 ± 0.012	0.101 ± 0.012	62.1 ± 0.4	70.1 ± 1.6	0.062 ± 0.017	68.7 ± 0.8	0.846 ± 0.146	121.5 ± 3.4
601	115.22	26.5 ± 6.8	1.28 ± 0.36	0.079 ± 0.018	0.079 ± 0.018	19.2 ± 0.2	64.0 ± 2.2	0.052 ± 0.021	28.4 ± 0.4	2.058 ± 0.555	35.4 ± 1.2

Note: TOS = top of screen.

mBGS = meters below ground surface.

dpm/m³ = disintegrations per minute per cubic meter of sample.

dpm/Kg = disintegrations per minute per kilogram of sample.

nd = non-detect.

The non-detect data were input into the fuzzy c-means algorithm with a value of 0.001 to represent the non-detectable values of ^{228}Th . The algorithm was allowed to choose between two to four primary clusters. After inspection, the most meaningful results based upon the recharge system types were three primary clusters. The three clusters were designated as: C1, a regional confined area (presented earlier in Fig. 2a); C2, an area receiving recharge from a localized confining layer window (presented earlier in Fig. 2b); and C3, recharge via a regional sub-crop (presented earlier in Fig. 2c). Clustering with membership between two primary clusters was successful for identifying recharge versus confined characteristic wells, but any clustering above 3 was not meaningful based upon the hydrogeological interpretation of the area. The results of the cluster analysis and the partitioned membership of each well within C1, C2 and C3 are summarized in Table 2.

All wells located in the Morton wellfield partitioned primarily to C1 membership, the regional confined system. All wells in the Sheahan wellfield partitioned membership to either C1 (wells 78, 87 and 95), or C2 (wells 88 and 99), previous research has shown that wells 87 and 99 in the Sheahan wellfield receive a component of modern water with unique U- and Th-decay series behavior [10, 12]. The membership distribution in the wellfield further demonstrates the behavioral differences in the transport and retardation of U- and Th-decay series isotopes in regional well-confined systems versus those impacted by localized recharge, which was reported earlier by Gentry et al. [10] for the Sheahan wellfield but did not include the additional data from the Morton wellfield in the analysis. Similar to the Sheahan wellfield, the Shaw wellfield partitioned membership between C2 (well 704) and C3 (wells 721 and 722). Well 704 is the most shallow well in the Shaw wellfield dataset and the membership distribution demonstrates that the wells receiving recharge via a confining layer window have a similar hydrochemical facie to shallow regional recharge zone wells. Thus, C3 is indicative of the regional recharge system. These results demonstrate the information rich nature of the data based upon the behavior of the isotopes due to changing redox conditions with the differing recharge regimes and the likely influence of colloidal transport of select isotopes, which is consistent with the geochemical conceptual model presented by

Gentry et al. [10]. Further, the fuzzy c-means membership partitioning tends to likely follow a correlation to the likely mixing between the end member conceptual models represented by C1, C2 and C3. This further demonstrates that these types of data are helpful in the identification of hydrochemical facies, which have relevance for managing the resource with respect to vulnerability.

To further explore these mixing relationships and their patterns, the data were normalized to the maximum value for each isotope. The distinct cluster centers determined from the fuzzy c-means analysis were also normalized to sample maximums for the purpose of pattern comparison. The normalized cluster centers are shown in Fig. 4, where each axis on the radar plot is scaled between 0 and 1. The regional confined zone cluster (C1) is characterized by lower values of radium and radon isotopes and the presence of ^{228}Th .

Whereas, the localized confining layer window cluster (C2) has higher values associated with uranium and thorium isotopes than C1, but ^{228}Th is absent. The regional recharge zone cluster (C3) had the highest values of radium and the lowest values of ^{238}U , ^{234}Th , and ^{230}Th , with ^{228}Th being similarly absent. For purposes of exploring these patterns, the data from each wellfield in Table 1, was normalized and plotted in a similar manner.

Table 2. Fuzzy c-means analytical results

Well ID	TOS (mBGS)	C1 Membership	C2 Membership	C3 Membership
Sheahan Wellfield				
87	101.84	0.994	0.006	0.001
88	94.54	0.003	0.996	0.001
99	107.92	0.181	0.803	0.016
78	124.94	0.997	0.003	0.000
95	236.21	1.000	0.000	0.000
Shaw Wellfield				
722	167.20	0.001	0.006	0.992
721	175.71	0.002	0.012	0.986
704	76.00	0.018	0.941	0.042
Morton Wellfield				
619	100.62	1.000	0.000	0.000
604	201.55	1.000	0.000	0.000
601	115.22	0.997	0.003	0.000

Note: TOS = top of screen.

mBGS = meters below ground surface.

C1 = cluster 1: regional confined – no leakage.

C2 = cluster 2: localized confining layer window recharge.

C3 = cluster 3: regional recharge zone.

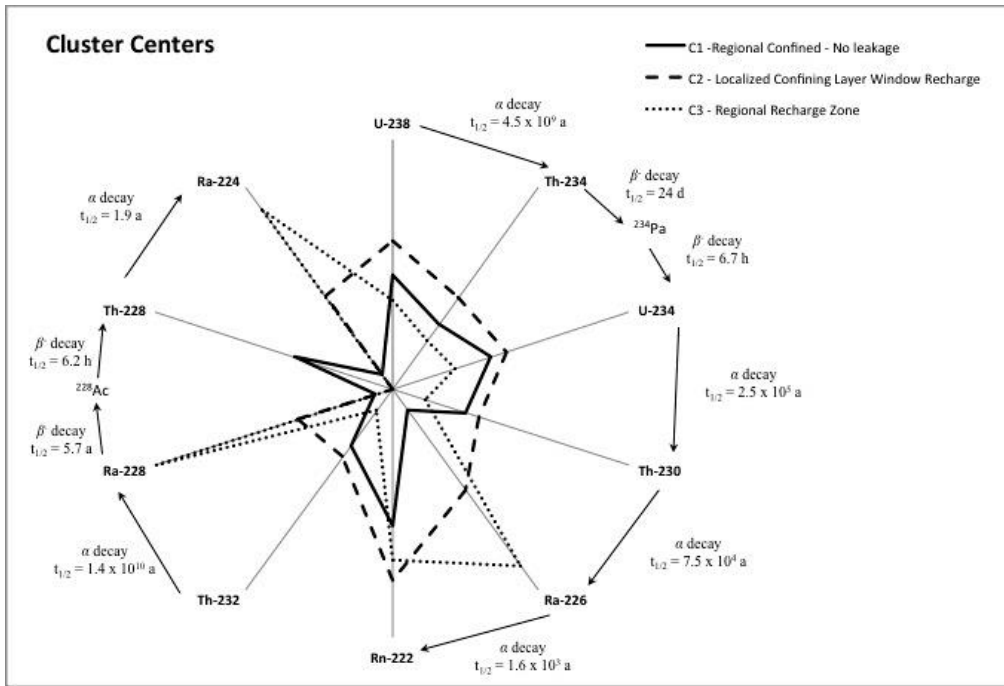


Fig. 4. Cluster centers from fuzzy c-means analyses using normalized values. Note: Data have been normalized to maximum value for each isotope. Axes are scaled from 0 to 1

The normalized data for Sheahan are shown in Fig. 5a, for wells not in close proximity to the known focal window recharge area, and in Fig. 5b, for wells 88 and 99 which are known to receive recharge from a near-window area [10, 12]. The normalized data for the Shaw and Morton wellfields were plotted in a similar manner and are shown in Fig. 6 and Fig. 7, respectively. It is apparent from the data patterns that the hydrochemistry from the three conceptual models can distinguish patterns in each wellfield with respect to wells that behave as deep more well confined systems and those influenced by shallow recharge systems. The Sheahan non-window wells shown in Fig. 5a show a very similar pattern to the Morton wells shown in Fig. 7, particularly for the presence of ²²⁸Th. The primary difference noted between the Sheahan non-window wells and the Morton wells is the high value of ²³⁴Th noted in well 95 in the Sheahan wellfield, which is likely due to the colloidal behavior of thorium in the system as noted by Gentry et al. [10,21].

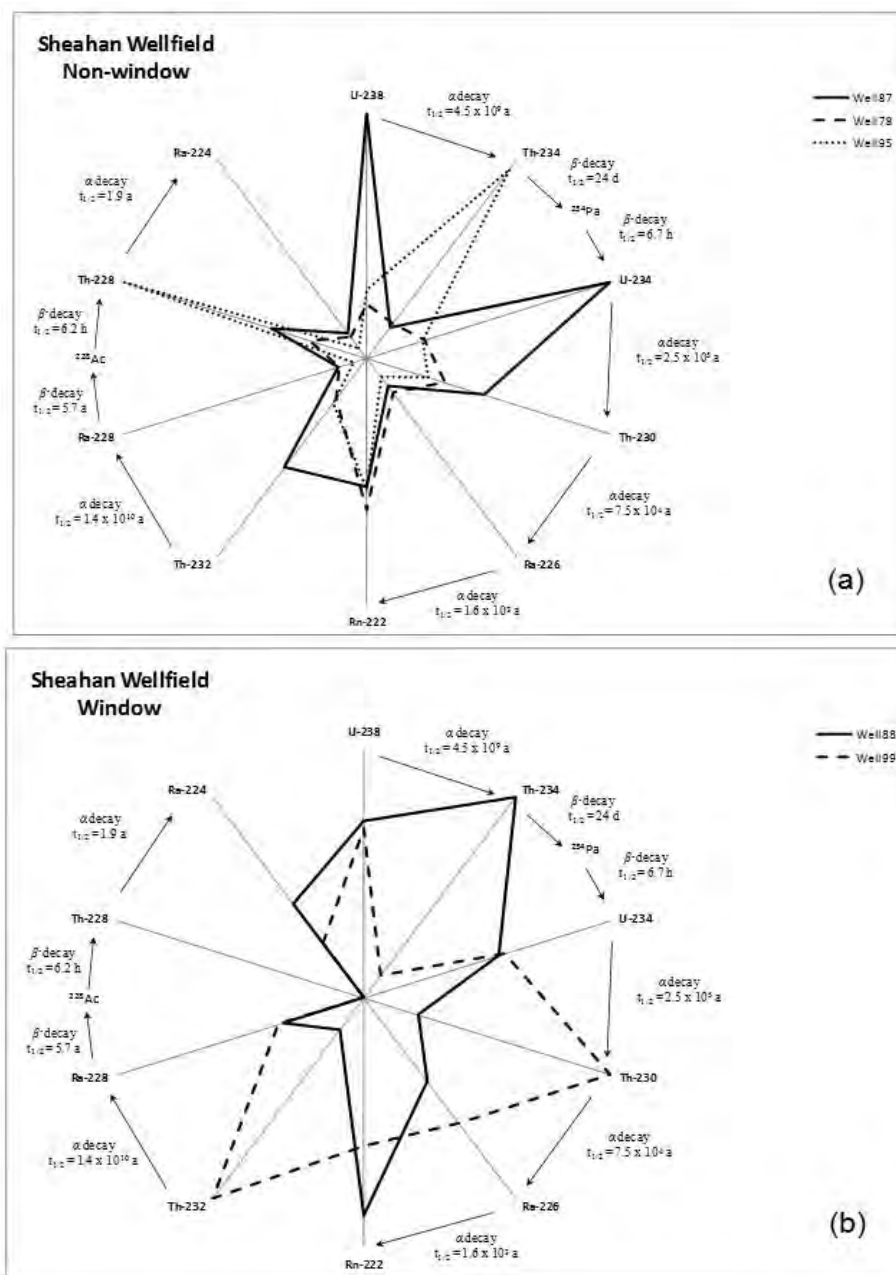


Fig. 5. Sheahan wellfield normalized uranium and thorium decay series data from: (a) wells classified as non-window sites; and (b) wells classified as window sites. Note: Data have been normalized to maximum value for each isotope. Axes are scaled from 0 to 1

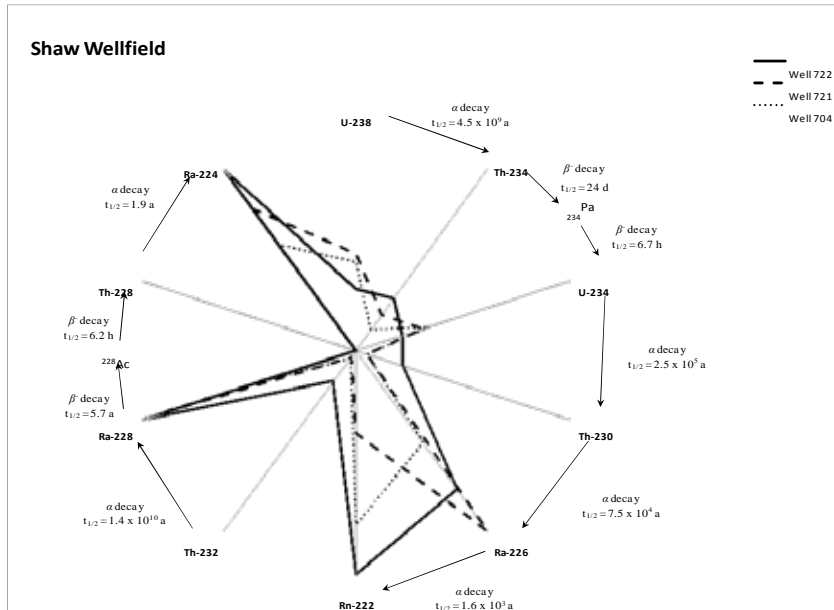


Fig. 6. Shaw wellfield normalized uranium and thorium decay series data.
Note: Data have been normalized to maximum value for each isotope.
Axes are scaled from 0 to 1

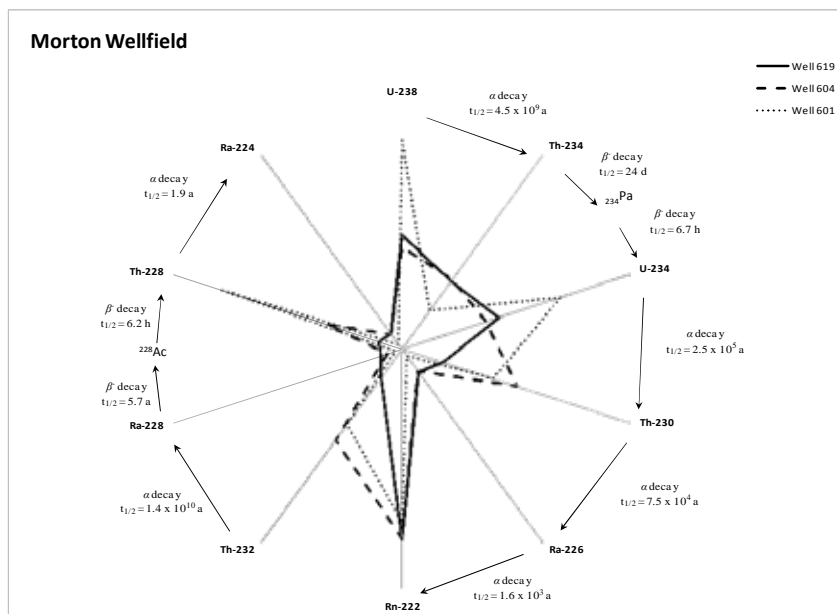


Fig. 7. Morton wellfield normalized uranium and thorium decay series data.
Note: Data have been normalized to maximum value for each isotope. Axes are scaled from 0 to 1

The data from the Shaw wellfield and the window recharge wells in the Sheahan wellfield show the same absence of ^{228}Th and the similar pattern of higher radium and radon isotope concentrations. The variability seen in the Sheahan wellfield is the result of mixing between window recharge sources and deeper confined aquifer water. It is likely that the membership partition values in Table 2 correlate with the mixing ratios from these two sources. Explicitly captured by the cluster analysis, are the differences between the regional recharge wellfield (Fig. 6 shows the highest radium isotope signature) and the confining layer window recharge area (Figs. 5a and 5b) shows the highest uranium and thorium isotope concentrations, except for the absence of ^{228}Th . Further research should be done to corroborate these findings and to investigate the causation for the high radium isotope signature associated with both recharge sources. This approach using data-rich hydrochemical information may be useful as a future technique for better understanding the sources and behavior of individual wells in complex regional aquifer settings. This is particularly true given the state of global climate change and the current scenarios of groundwater management globally. These types of techniques would further provide understanding of the impacts from long-term pumping and aquifer storage response from a long-term perspective.

4. CONCLUSIONS

Eleven wells from three wellfields with differing recharge source water were analyzed for uranium and thorium decay series isotopes (ten parameters for each well). These data were analyzed using a fuzzy c-means algorithm to determine the efficacy of the technique for discriminating meaningful hydrochemical facies. Overall the study conclusions can be summarized as follows:

1. The findings have indicated the fuzzy c-means technique coupled with robust U- and Th-decay series data can identify the differences between: (C1) well confined settings with no leakage; (C2) localized confining layer window recharge; and (C3) regional recharge zone settings.

2. The overall technique was efficacious given that it was capable of determining behavior characteristics at the individual well level within the

wellfield groupings with meaningful interpretations to the given conceptual models.

3. The fuzzy c-means technique may be used with a robust hydro-geochemical dataset to further elucidate aquifer storage behavior and response for management purposes where vulnerability is linked to the aquifer recharge mechanism. Demonstrated by the ability to identify possible mixing relationships representative of conceptual model types.

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Aleksandr Egorychev,

Russian State Social University,

Faculty of Social Work, Professor of Department

of Social and Family Pedagogy,

Lev Mardakhaev,

Russian State Social University,

Faculty of Social Work, Professor

***Global inter-ethnic community in the beginning
of the XXI century: the search for a model
of ethnic harmony and survival***

Начало XXI века показало, что человеческая цивилизация входит в новый этап своего развития, обусловленного многими факторами, условиями и тенденциями (финансовыми, экономическими, социокультурными, национальными, технологическими, демографическими, информационными, духовно-нравственными, иными), определяющими её движение во времени и пространстве [3].

Реалии современного мира демонстрируют, что существующий способ жизненной организации, как любого конкретного национального государства, так и всего мирового сообщества, уже не соответствует вызовам нового времени. Наступающий цивилизационный кризис породил мощное социально-политическое напряжение в мировом сообществе, включая межнациональные конфликты самого разного уровня и характера. Межнациональные конфликты начинают угрожать развитию всему международному сообществу. Всё это требует выработки новой модели цивилизационного развития, которая должна включать адекватную систему межнационального согласия и взаимодействия.

Проблема поиска новой модели жизнеустройства привлекает внимание многих отечественных и зарубежных исследователей (В.А. Авксентьев, Б. Андерсон, С.А. Арутюнян, Д. Дэвис, А.А. Быков, Л.М. Дробижина, А.М. Егорычев, В.Б. Иорданский, А.Г. Здравомыслов, А.Д. Лопуха, Н. Миллер, Н.Н. Моисеев, В. Ньюман, С. Раджаратнам, Д. Ролз, Г. Тилли, В.Н. Турченко, С. Хантингтон, Й. Хейзинг, др.).

Американский философ Джон Ролз, в своей книге «Теория справедливости» (A Theory of Justice; 1971), предложил развернутую концепцию справедливости, базирующуюся на идеологии либерализма, её центральной идеей выступал принцип «справедливость как честность» [6]. Другой, не менее известный учёный и политик США С. Хантингтон, ещё в конце XX века сделал футурологическое предположение о том, что мировое сообщество в ближайшем будущем ожидают глобальные конфликты. Природа таких конфликтов будет выражаться в культурном противостоянии [7].

Тем не менее, остались открытыми следующие вопросы: Какой компромисс будет достигнут в результате разрешения данных конфликтов? Каким будет мир после разрешения культурных конфликтов?

Дело в том, что многие западные политики и учёные придерживаются точки зрения о том, что существующая западная модель жизнестроительства является наиболее верной и эффективной, а их ценности лучшие в мире. Сформированный уклад западной цивилизации в какой-то мере подтверждал данный посыл. Однако события, происходящие в последнем десятилетии, ставят это под большое сомнение, более того, они начинают вызывать растущие опасения. Западная теория толерантности и повсеместной социальной идентификации на едином культурном основании оказалась несостоятельной. Мир не готов к такой «справедливой» модели развития и взаимодействия.

Современные межнациональные противоречия, выражающиеся в расовых и этноконфессиональных военных конфликтах, системном терроризме, включая последние события, связанные с миграционными процессами, с которыми столкнулась Европа в 2015-2016 годах, заставляют сомневаться в эффективности западной модели жизнестроительства, искать новые подходы к построению более правильного и справедливого мира, адекватного межнационального и межкультурного взаимодействия. Здесь возникает определяющий вопрос: Возможно ли вообще построение единого мирового социокультурного пространства, когда все этносы, народности и нации социально идентифицированы как единое целое, политически оформлены в единую цивилизацию?

Известный русский философ и культуролог Н.Я. Данилевский (1822-1885) считал, что «Общечеловеческой цивилизации не существует и не может существовать, потому что это была бы только невозможная и вовсе нежелательная полнота» [2, с. 129-130].

Не вдаваясь в глубокий анализ настоящей проблемы, тем не менее, можно говорить о том, что межнациональные противоречия, конфликты и столкновения будут присутствовать всегда или достаточно долго. Основная задача всех государств мирового сообщества заключается в построении такой внутренней и внешней политики, которая способствовала бы выработке системы межнациональных отношений и взаимодействий на бесконфликтной основе с сохранением и развитием собственной национальной и социальной идентификации, с сохранением всех составляющих национальной культуры (традиционной религии; народной педагогики и социального воспитания; народных традиций и обычаев; норм и стереотипов поведения, др.). Эту мысль также подчёркивал С. Хантингтон, говоря о том, что в обозримом будущем не сложится единой универсальной цивилизации, и каждой из них придётся учиться сосуществовать со всеми остальными [7].

Таким образом, анализ существующей ситуации в современном мировом сообществе показывает, насколько сегодня актуален поиск адекватных решений этой важнейшей социально-политической проблемы.

Настоящее исследование направлено на поиск и обоснование модели межнационального взаимодействия в условиях мировой социокультурной динамики, надвигающегося глобального цивилизационного кризиса. Задачи исследования включали анализ: существующих в научной литературе подходов, рассматривающих проблемы развития мировой цивилизации; концептуальных идей и положений построения моделей межнационального согласия и взаимодействия в рамках международного сообщества; поиск адекватного решения данной проблемы.

Необходимо признать, что вхождение человечества в новое пространство и время (начало XXI века) происходит достаточно сложно. Человечество отягощено прежним историческим грузом отработанных смыслов и ценностей, норм и стереотипов социального взаимодействия, которые долгое время определяли организацию и функционирование всех сфер, структур и институтов национальных государств и сообществ, сложнейшую систему межнациональных отношений. Настоящий момент порождает череду природных катастроф и социальных возмущений, выражающихся в самых разнообразных формах (социально-политический антагонизм, цветные революции, системный терроризм, локальные

войны, наркомания, падение нравственности, порождение новых психологических зависимостей, мн. др.).

Необходимо отметить, что кризисная ситуация, которую мы наблюдаем сегодня в мировом сообществе, есть объективная реальность, которая обусловлена многими условиями и факторами, которые в своей детерминированной совокупности порождены существующей системой рыночных отношений. Уже несколько столетий рыночная петля втягивает в орбиту своего движения все нации и народы планеты, подчиняя себе их жизненные силы, формируя систему отношений, утверждая рыночные принципы организации бытийного мира, определяя смыслы жизни каждого индивида, целых народов и государств. Все народы и государства мирового сообщества включены в бесконечную конкурентную гонку за выживание и захват «лучшего места под солнцем». Эти цели требуют неимоверного напряжения всех жизненных сил народа, подчинения всех ресурсов государства и общества (политических, военных, интеллектуальных, научно-образовательных, природных, др.) на решение сложнейших задач рыночной экономики в условиях глобализации.

Системная глобализация, как мощное явление XXI века, определяющая развитие многих сфер национальных государств, прежде всего, финансовой и экономической, одновременно втягивает в орбиту своих интересов природно-ресурсные комплексы, человеческий капитал, национальные системы образования, мн. др. Одновременно глобализация порождает жесточайшую конкуренцию и межгосударственную конфронтацию, подвергает унификации социокультурные смыслы и ценности, этические нормы и стереотипы поведения, что, в конечном итоге, приводит к разрушению традиционной национальной культуры. И как результат – происходит спонтанное освобождение дремлющей энергии национального сознания и самосознания народов мирового сообщества, что и порождает антагонизм самого разного уровня.

Современные народы и государства, находясь в системе явных и скрытых антагонистических отношений, которые усугубляются политическими, этническими, культурными, конфессиональными, иными различиями, начинают входить в активную фазу кризиса межнационального противостояния. Создавшаяся ситуация требует выработки новой модели межнационального согласия и взаимодействия, что требует, прежде всего, новой идеологии жизнестроительства

для всех народов мира. Эта модель не должна выражать идею единого универсального мира, построенного на единой социокультурной основе.

Понятно, что всё мировое сообщество, состоящее из несколько тысяч этносов, народностей и наций, исторически организованных в национальные государства и сообщества, имеющих свою сложившуюся государственность, этнические традиции, верования, устоявшиеся социальные стереотипы и нормы поведения, гендерную культуру, способы организации своей жизни, многое другое, не может так просто интегрироваться в одну «унифицированную мировую культуру», принять единые универсальные смыслы и ценности, нормы и законы жизненной организации, и таким образом войти в новое пространство жизни.

Надо признать, что попытки организовать в единое сообщество, с едиными унифицированными смыслами и ценностями человечество предпринимало и продолжает предпринимать. Более того, это становится навязчивой идеей для некоторых мировых государств и сообществ (США, Европейский союз), которые на уровне международной политики, пытаются всеми возможными и доступными способами навязать миру свои, как им кажется, лучшие смыслы и ценности, своё видение развития мира, свой способ организации жизни и, в конечном итоге, полностью подчинить его себе. Другие сообщества (ИГИЛ, запрещённая организация в России) пытаются свои ценности утвердить в мире посредством уничтожения всех других культур, не соответствующих их пониманию и вере.

Вопрос единых смыслов и ценностей для всех народов мира достаточно сложный и противоречивый. В своё время Н.Я. Данилевский писал по этому поводу, что не существует политического, экономического или духовного идеала, пригодного на все времена и для всех народов, т.к. «все явления общественного мира суть явления национальные» [2, с. 170]. Он был убеждён в том, что в основе каждой из культур в качестве её энергетического центра лежит национальное начало, способное к развитию благодаря сообщённой ему божественной энергии [2].

Выводы и перспективы дальнейшего исследования. Для каждой культуры мировой цивилизации (этноса, народности, народа, нации) характерна своя многотысячелетняя история рождения, становления и развития. На исторических волнах собственного развития каждый народ формировал свои национальные смыслы и ценности, представления об окружающем мире, выра-

батывал свои особые формы организации жизнеустройства и социального взаимодействия, собирал и закреплял в традициях и этнических стереотипах, обрядах и ритуалах всё то, что позволяло ему не только выживать в конкретных природных и социальных условиях, но и сохранять себя как уникальную культуру.

Весь огромный многотысячелетний исторический потенциал, отражающий опыт выживания конкретного народа, его смыслы и ценности, всю философию его жизни, как выразитель «божественной энергии», закреплён:

- в генетической памяти его народа, каждого его представителя, образуя своеобразный «национальный социокультурный геном», имеющий выражение в ментальности народа и его культуры;

- в национальной народной культуре, её традициях, фольклоре, искусстве, литературе, народной педагогике, традиционных семейных ценностях, способах организации социальных институтов (образования), др.

Таким образом, новая модель цивилизационного развития мирового сообщества в своём построении должна опираться на философские и социокультурные основы всех существующих народов планеты Земля, уважая их смыслы и ценности и позволяя им реализовывать свои национальные программы развития в рамках общепринятого международного права. Другого варианта просто не существует.

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Rechytskyi Alexander,

State University of Kherson,

Associate Professor, Ph.D. in Chemistry,

Faculty of Natural Sciences,

Reshnova Svitlana,

Associate Professor, Ph.D. in Pedagogics,

Varshevskyi Viacheslav,

Master of Science in Chemistry

Development of the complex computer training program in organic chemistry

Речицкий Александр,

Херсонський державний університет,

доцент, кандидат хімічних наук,

факультет природознавства,

Решнова Світлана,

доцент, кандидат педагогічних наук,

Варшевський В'ячеслав,

магістр хімії

Розробка комплексної комп'ютерної навчальної програми з органічної хімії

Сучасний розвиток комп'ютерних технологій, проникнення їх у повсякденне життя вимагає введення нових методів та інструментів у навчання студентів. Програмований контроль з застосуванням сучасних інформаційних технологій – це чергова сходинка до використання техніки найвищого класу в підготовці спеціалістів різних галузей народного господарства і науки. Тому практично всі розвинені країни розробляють і широко використовують комп'ютерні технології навчання. Відповідно, виникає потреба у комплексних комп'ютерних навчальних програмах,

які б інтегрували у собі електронний підручник, навчальну та контролюючу програми. Подібні комплексні програми були б дуже корисними для студентів всіх форм навчання. Використання електронного програмованого комплексу допоможе студентам здійснювати самоконтроль знань з органічної хімії, удосконалювати та поглиблювати знання і вміння. Крім того, необхідність виразити свої знання в однозначній формі у певній мірі дисциплінує мислення. Електронна контролююча програма дозволяє викладачам із мінімальними затратами часу визначати і оцінювати знання кожного студента, тому що уміння розв'язувати завдання – це один з найважливіших критеріїв оцінки знань [1, 2].

Все вище перелічене зумовило **актуальність** вибраної теми науково-методичної роботи.

Мета роботи: розробити комплексну комп'ютерну навчальну програму для програмованого навчання органічної хімії.

Програмоване навчання – це комбінована дидактична система [3], яка включає: а) електронний підручник, б) електронний задачник, в) програму комп'ютерного контролю знань, г) програму статистичного аналізу результатів контролю, д) програму зворотнього зв'язку.

Перші три програми орієнтовані на студента. Програма статистичного аналізу результатів контролю та зворотнього зв'язку призначена більше для роботи викладача.

Для електронного підручника було обрано навчальний посібник "Органічна хімія в схемах" [4, 5], створений авторами статті відповідно до чинної програми курсу "Органічна хімія" для студентів спеціальності "Хімія". При розробці електронного посібника "Органічна хімія в схемах" використана технологія HTML.

Необхідність створення подібного посібника зумовлена рядом причин. По-перше, при розробці посібника автори мали на меті представити інформацію у наочній формі – у вигляді блок-схем. Спроби подати інформацію у вигляді схем і таблиць раніше здійснювались з хімії лише іноземними вченими-біохіміками [6, 7]. В той же час при модульній системі навчання лекції втрачають свою виключно інформаційну функцію. На лекціях викладають лише узагальнені, вузлові питання й алгоритми розв'язування основних завдань. Узагальнення вимагає деякої перебудови матеріалу, об'єднання його у блок навколо основних понять. Блок-схеми слугують наочним матеріалом і сприяють утворенню чітких та точних об-

разів сприйняття й уявлення, полегшують студентам перехід від сприйняття конкретних предметів до сприйняття абстрактних понять про них, шляхом виділення і словесного закріплення очевидних, загальних, суттєвих властивостей предметів, полегшують роботу з розв'язування пізнавальних задач.

Таким чином, основне призначення посібника – бути змістовним довідником, який дозволив би оперативно отримувати наочну інформацію з вузлових питань.

По-друге, все що не включено в посібник, легко доповнюється змістом інших підручників. Для студентів, які глибоко вивчають органічну хімію, деякі блок-схеми можуть показатися дещо лаконічними. Але блок-схеми електронного посібника є скелетом органічної хімії, що дозволяє надалі розширювати і поглиблювати знання з цієї дисципліни.

По-третє, у посібнику викладено основи сучасної органічної хімії на атомно-молекулярному та електронному рівнях з урахуванням рекомендацій IUPAC.

Зміст посібника відібраний і структурований відповідно до загального алгоритму розгляду класів і груп органічних сполук (склад, будова, властивості, одержання та застосування), встановлені внутришньо- та міжпредметні зв'язки. Блок-схеми супроводжуються великою кількістю структурних, електронних, стереохімічних формул, рівнянь та механізмів органічних реакцій. Для використання електронного підручника на лекціях створено його варіант у вигляді презентацій.

Враховуючи інформаційно-предметний склад змісту органічної хімії, було визначено ряд вимог до знань і вмінь студентів [8-10], що дозволило при відборі змісту завдань електронного задачника реалізувати принцип науковості. В той же час, при розробці змісту завдань зіткнулися з рядом проблем:

- 1) проблема виділення об'єктів контролю;
- 2) проблема рівневої диференціації завдань;
- 3) проблема врахування значущості окремого завдання для формування підсумкової оцінки знань та інтелектуальних вмінь;
- 4) проблема діагностичності контролю.

Електронний задачник містить близько 1500 тестових завдань різного рівня складності та різних типів:

1. Закриті завдання з альтернативним вибором.
2. Закриті завдання з множинним вибором.
3. Завдання на встановлення вірної послідовності.

4. Завдання з однозначною відповіддю.
5. Закриті завдання на встановлення відповідності.
6. Частина завдань, у яких складно або неможливо зашифрувати відповідь у тестовій формі, представлена з певним кодом для самоконтролю.

Тестові завдання розроблені з урахуванням загальних принципів і вимог до оформлення шаблонів тестів, їх форми та змісту [11].

Завдання пропонуються після певної порції інформації, повторюючи структуру викладу теоретичного матеріалу в посібнику. Така послідовність виконання завдань допомагає студентам більш тісно пов'язати теоретичні знання з розв'язанням задач, засвоїти вивчений матеріал, активізувати самостійну роботу, викликати цікавість до набуття знань з органічної хімії.

Блоки тестових завдань побудовані за технологією програмованого навчання і дозволяють виявити прогалини у знаннях. Для ліквідації цих прогалин пропонуються як додаткові завдання-підказки, так і посилання до матеріалів електронного посібника.

Програма комп'ютерного контролю знань створена на базі ADSoft Tester і містить завдання з кожної теми. Пропонуються 45-50 завдань трьох рівнів складності (25 % – першого, 50 % – другого, 25 % – третього), на розв'язання яких відводиться 90 хвилин.

Програма статистичного аналізу результатів контролю дозволяє оцінити загальний рівень знань по кожній темі і в цілому, як окремого студента, так і всієї групи.

Програма зворотного зв'язку виконує корегуючу функцію у навчальному процесі.

Комплексна комп'ютерна програма знаходиться в процесі активної роботи, тому важко оцінити її ефективність. Але можна стверджувати, що використання її дозволяє студентам здійснювати крок у навчанні при засвоєнні певного об'єму інформації на конкретному рівні і крок за кроком рухатися до загальної мети навчання.

Ефективність людино-машинної системи підтверджується багаторазовими навчальними експериментами і безсумнівним є той факт, що використання інформаційних технологій дає очевидну користь тому, кого навчають.

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Alla Khomenko,

Poltava V.G. Korolenko National

*Pedagogical University, Doctoral Student of the Department of General
Pedagogics and Andragogics, Physics and Mathematics Faculty*

Changing of pedagogical paradigms in the methodology of scientific cognition

Алла Хоменко,

Полтавський національний

*педагогічний університет імені В. Г. Короленка,
докторант кафедри загальної педагогіки та андрагогіки,
фізико-математичний факультет*

Зміна педагогічних парадигм у методології наукового пізнання

Сучасний етап розвитку цивілізації характеризується глобальними змінами й інтеграційними процесами, які вплинули на всі сфери людської життєдіяльності. Феномен глобалізації широко обговорюється академічними колами вітчизняної і зарубіжної педагогічної науки. Піднімаються питання створення єдиного світового освітньо-виховного простору, посилення міжкультурного інформаційного обміну країн, розвитку планетарного мислення, формування крос-культурної грамотності, активної соціальної позиції людини у швидкозмінному світі. В умовах інформаційної революції глобальна освіта і виховання виступають у якості нової соціально-гуманітарної педагогічної парадигми, яка зумовлює не тільки глобально-еволюційну і соціально-інформаційну модернізацію педагогічного процесу, але й виступає методологічним підґрунтям гуманізації, гуманітаризації і демократизації світового освітньо-виховного простору.

У зв'язку з цим, на перший план висувається проблема пояснення суті сучасних педагогічних реалій, розуміння логіки побудови і функціонування

освітньо-виховного процесу, що відбувається на основі зміни педагогічних парадигм, і як наслідок, наукових концепцій, теорій, методологічних підходів.

Аналіз наукових праць показує, що проблема зміни педагогічних парадигм у вітчизняній і зарубіжній педагогічній науці є дискусійною. Вона досліджувалася за такими напрямками: методологія аналізу процесу зміни науково-педагогічних парадигм (Н. Агапова, М. Богуславський, Б. Гершунський, Н. Коршунова, В. Краєвський, П. Матвієнко, Х. Тхагапсоев, І. Фомічова, Г. Щедровицький та ін.), наукові революції як зміна наукових парадигм (В. Візгін, П. Гайдєнко, В. Казютинський, Б. Кедров, Т. Кун, К. Поппер, В. Стюпін, В. Тестов та ін.), процес виявлення, розвитку і зміни педагогічних парадигм (С. Бобришов, А. Бойко, І. Глікман, Г. Жукова, Р. Нугаєв, С. Клепко, І. Колесникова, Г. Корнетов, А. Кузьминський, М. Левківський, С. Липський, Вал. Луков, Вл. Луков, Л. Новикова, Г. Окушова, А. Півненко, І. Сінагатулін, В. Шепель, Б. Щербаков, П. Саух, В. Крисаченко та ін.), аспект співіснування парадигм педагогічної науки (П. Суртаєв, А. Юрєвич, Є. Ямбург та ін.).

Мета нашого наукового пошуку полягає у виявленні й аналізі якісних характеристик, що зумовлюють процес зміни педагогічних парадигм у методології наукового пізнання.

Розгляд цього питання потребує звернення до історії розвитку науки, а саме – аналізу ролі наукових революцій у перебудові основ науки. “Наука є високоспеціалізованою діяльністю людини з вироблення, систематизації, перевірки знань з метою їх високоефективного використання: це знання, що досягло оптимальності по критеріям обґрунтованості, достовірності, несуперечності, емпіричного підтвердження, концептуальної зв’язаності, точності й плідності, практичної ефективності. Вказані критерії характерні для усіх наук, усіх складових дисциплінарної матриці сучасного наукового знання” [3, с. 73].

Епістемологічна зміна парадигми визначається у філософії освіти як наукова революція, яка “досліджується на основі єдності культурологічного, філософсько-методологічного і соціологічного підходів і постає як період інтенсивного росту знань, докорінної перебудови філософських і методологічних основ наук, формування нових стратегій пізнавальної діяльності” [7, с. 208]. У соціально-гуманітарному знанні революційні перетворення здійснюються шляхом глобальних змін передумов і основ наукового знання, стилю мислення, ідеалів і норм дослідження, а також філософсько-світоглядних принципів і понять.

Загальновідомо, що вперше поняття парадигми і наукової революції було введено в обіг наукових знань постпозитивістом Т. Куном, американським філософом та істориком науки. Наукова революція детермінує радикальні якісні зміни у світі наукового знання – змінює картину світу в системі ідеалів і норм науки та виступає підґрунтям перебудови основ науки. Т. Кун розглядає парадигму як світоглядну основу наукового знання, як дисциплінарну матрицю і як загально визнаний зразок вирішення наукових завдань певним науковим співтовариством і доводить, що наукове осмислення буття неминуче передбачає процес зміни наукових парадигм.

У своїй праці "Структура наукових революцій" (1962 р.) дослідником запропоновано модель розвитку науки, яка складається з чотирьох стадій: допарадигмальної, що передує становленню парадигми (кумулятивне накопичення теоретичних і експериментальних знань, розвиток альтернативних гіпотез); панування парадигми (нормальна наука), де кожне наукове відкриття пояснюється за допомогою домінуючої теорії, відбувається збереження прийнятих концептуальних основ та спадкоємність традицій; криза нормальної науки (екстраординарна наука), де з'являються факти, яких не можна пояснити і як наслідок – виникнення альтернативних теорій; наукова революція (зміна наукової парадигми), створення принципово нових наукових теорій, які у корені змінюють світобачення. Зміна наукової парадигми, перехід "до фази революційного розлому", на думку вченого, передбачає повне або часткове заміщення елементів дисциплінарної матриці, техніки дослідження, методів і теоретичних припущень [6]. Таким чином, процес зміни однієї наукової парадигми іншою відбувається завдяки радикальній зміні світогляду, появі принципово нової системи світобачення з новою системою цінностей, способів вирішення науково-дослідних завдань, спостереження й вимірювання явищ і різних практик.

Проте потрібно зазначити, що ця наукова праця розкриває структуру наукових революцій насамперед у природничих науках, процес наукового пізнання яких істотно відрізняється від соціально-гуманітарних наук. Специфіка наукового пізнання в галузі педагогіки полягає у взаємодетермінації педагогічного наукового знання і педагогічної дійсності, яка представлена педагогічною теорією і практикою: педагогічна парадигма розглядається у вітчизняній педагогічній науці (Є. Адоньєв, А. Биков, А. Бойко, Є. Бондаревська, Т. Власова, Г. Корнетов, І. Липський, Вал. Луков, Вол. Луков, В. Мосолов, В. Пилиповський, О. Прикот, З. Равкін,

В. Серіков, Е. Складенко) як базовий методологічний конструкт і регулятив педагогічної науки та інноваційної практики. Тому процес зміни педагогічної парадигми у певну історичну епоху, на новому етапі розвитку суспільства, характеризується не тільки створенням принципово нових науково-педагогічних теорій, але й інноваційною практичною діяльністю в сфері освіти і виховання підростаючого покоління, що детермінує розвиток соціальної, економічної, політичної і культурної сфер життєдіяльності соціуму.

Як показує логіко-методологічний аналіз наукових досліджень, типологія парадигмального знання, осмислення явища зміни педагогічних парадигм, здійснюється вченими на різних методолого-теоретичних засадах. У більшості наукових досліджень цей процес представлений імпліцитною точкою зору, де мова частіше йде, як справедливо наголошує В. Краєвський, “не про педагогічну парадигму як об’єкт педагогічної науки, а про парадигму наукової діяльності” [5, с. 21].

Н. Л. Коршунова доводить недоцільність розведення поняття наукової і освітньої парадигми, оскільки “педагог-дослідник має справу з педагогічною дійсністю у формі теоретичних уявлень” [4, с. 15], наполягає на необхідності однозначного загальнонаукового трактування поняття “парадигма” і вважає, що терміни “парадигма” і “методологія” не є синонімами: з позиції історії науки більш широким виступає поняття парадигми, оскільки воно пов’язується з періодами революційних змін в науці, проголошуючи нові методологічні установки; з позиції онтології конкретної науки, більш загальним є поняття методології, яке може безконфліктно уміщувати в собі риси парадигм, що уходять і народжуються. Також науковець зазначає, що “педагогіка розвивається не революційним, а еволюційним шляхом: вона переживає періоди загальної невдоволеності, напруженої саморефлексії, пошуку нових способів педагогічного світобачення, перехідних станів” [4, с. 19].

Г. Окушова підкреслює, що зміну педагогічних парадигм не можна розглядати як результат тільки внутрішньої дискусії в педагогічному співтоваристві, вона обумовлена духом часу, суспільним світоглядом, а головне, спровокована зміною типів філософського мислення: від класичної метафізики до логіки постметафізики [8]. Є. Бондаревська доводить, що зміна педагогічної парадигми не може відбутися зусиллями одного або декількох учених: це процес, що виникає в ході наукових революцій і пов’язується з виникненням нового наукового

методу, нової системи цінностей і світорозуміння та забезпечує особливий спосіб наукового світобачення, який формується лише в спільній діяльності вченого співтовариства [2, с. 3]. Проте, як стверджує Л. Микешина, "частіше за все зміна парадигми постає як формування нового розуміння одного-двох параметрів, і тоді мова йде не про масштабну революцію, а лише про парадигмальні зрушення" [7, с. 355].

Стан розвитку методології сучасної педагогіки визнається більшістю вчених як кризовий. У сучасних умовах модернізації сучасного суспільства характерною рисою є поліпарадигмальність, що пояснюється широкою інтеграцією наукового знання і припускає співіснування кількох методологічних систем, в рамках яких вибудовуються цілісні, завершені моделі освітнього процесу, виражені у формі педагогічних теорій, технологій, систем навчання і виховання (І. Фомічова, І. Колесникова, О. Прикот, Г. Корнетов, Є. Шиянов та ін.).

Аналіз філософсько-педагогічних джерел [1; 3; 6; 7; 10] показує, що кожна педагогічна парадигма проходить в своєму розвитку етапи підготовки, становлення, завершеності, статичності і кризи, коли вона перешкоджає подальшому розвитку освіти і виховання та суспільства в цілому. Специфічною рисою процесу зміни педагогічних парадигм є те, що вони при переході суспільства на новий етап розвитку не зникають, а модифікуються в іншу парадигму, більш сучасну, адаптовану до нових суспільно-культурних вимог.

Наукове знання є соціально-історичним явищем, елементом культури, носієм системи цінностей і дослідницьких пріоритетів науковців. Цінності науки відіграють вирішальну роль при визначенні стратегії наукового пошуку, напрямів розвитку науки, типу раціональності, постановки дослідницької задачі. Вони впливають як на сам процес наукової творчості, так і на ціннісне самосвідомість вчених і наукових співтовариств [9].

Вищесказане дозволяє виокремити методологічно значущі якісні характеристики, що зумовлюють поступову зміну педагогічних парадигм: залежність розвитку педагогічної науки і практики від ідеології побудови держави та розвитку суспільства; оцінка цінностей і цілей освітньо-виховного процесу на рівні трансляції ментальних пріоритетів; перебудова соціально-педагогічних відносин дорослих і дітей на основі зміни їх ролей і функцій у суспільстві відповідно до стратегічних цілей державотворення; розгляд процесу виховання як міждис-

циплінарної проблеми; визначення феномену дитинства як головного ресурсу розвитку країни.

Таким чином, зміна педагогічної парадигми відбувається в момент епохальних соціокультурних змін, що стимулює і визначає становлення нового наукового мислення, нових якостей суспільної свідомості і практики, нового типу культури. Розвиток педагогічної науки шляхом зміни парадигм є дискретним процесом, що відображає логіку функціонування освітньо-виховного процесу в певний історичний період. Подальшого дослідження потребує проблема парадигмального осмислення процесу виховання особистості у XXI столітті, що зумовлюється світовою глобалізацією.

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*Novikova Albina Alekseevna,
School of Pedagogics Far East
Federal University (Branch in Ussuriisk),
Professor, Candidate of Philology*

***"Reflecting on life...": Moscow – the Far East
(to the 125 anniversary of travel of A.P. Chekhov
to Sakhalin Island)***

*Новикова Альбина Алексеевна,
Школа педагогики Дальневосточного
Федерального университета (филиал в г. Уссурийске),
профессор, кандидат филологических наук*

***«Размышляя о жизни...»: Москва – Дальний Восток
(к 125-летию путешествия А.П. Чехова на о. Сахалин)***

А.П. Чехов совершил гражданский подвиг, написав книгу «Остров Сахалин» после поездки на каторжный остров в 1890 году и «засвидетельствовал» всему миру «сей жёсткий арестантский халат». По свидетельству О. Дорофеева, «окружающие восприняли решение Чехова отправиться на «кандалный остров» по-разному. Энтузиазм Чехова по поводу его предстоящей поездки разделяли журналист и драматург В.А. Тихонов, литературный критик С.Н. Филиппов, беллетрист И.Л. Леонтьев (Щеглов) и другие его близкие и друзья. «Раз Вы опишете Ваше путешествие не мудрствуя лукаво, с присущей Вам наблюдательностью и остротой, – писал И. Щеглов Чехову 20 марта 1890 года, – то будет уже громадная заслуга перед обществом, и книга должна получиться захватывающего интереса и поучительности. Помимо этого, узнав чуть не три четверти России, Вы в Ваших творческих работах будете иметь уже ту живую руководящую нить, без которой все мы выйдем по справедливости какими-то недоучившимися и немогузнайками» [1]. Чехов скромно, даже несколько шутливо, ответил: «Пожалуйста, не возлагайте литературных надежд на мою сахалинскую поездку. Я еду не для

наблюдений и не для впечатлений, а просто для того только, чтобы пожить полгода не так, как я жил до сих пор. Не надейтесь на меня, дядя; если успею и сумею сделать что-нибудь, то – слава богу, если нет – то не взыщите» [1].

Известно, что в апреле 1890 года М.П. Чехов принял самое деятельное участие в подготовке к путешествию старшего брата на остров Сахалин, о чём писал в своих воспоминаниях «Вокруг Чехова»: «Поездка эта была задумана совершенно случайно. Собрался он на Дальний Восток как-то вдруг, неожиданно, так что в первое время трудно было понять, серьёзно ли он говорит об этом или шутит» [2]. Тем не менее, он консультировал Антона Павловича по правовым вопросам, был его первым и главным собеседником по замыслу подготовки путешествия.

В фондах Российского государственного архива литературы и искусства (РГАЛИ) хранится биография М.П. Чехова, написанная его сыном Сергеем. В частности он указывает, например, что «Михаил и Антон договорились, что встретятся в Японии, куда прибудет старший брат по окончании работы на Сахалине, а Михаил приплывёт на пароходе вокруг всей Азии». Видимо, брат собирался ехать вслед за Антоном, но эта заманчивая встреча на японской земле не состоялась, так как уже из Сибири Антон Павлович известил брата, что, возможно, «будет возвращаться домой через Америку» [3].

А.П. Чехов отправился в героическое путешествие, где впереди его ожидали «страшный холодище» днём и ночью, борьба «не на жизнь, а на смерть», но он не жаловался и продолжал свой трудный путь. Сохранилось письмо М.П. Чехова брату на Сахалин, переведённое с английского языка С.С. Толстым: «6 июня. Дорогой мой, сегодня, после обеда, я прибыл со своей матерью в монастырь «Святые Горы». Местоположение прекрасное, а люди интересные. Прощай! Желаю тебе процветания, и чтобы ты благополучно закончил своё опасное путешествие. Скоро напишу, и притом много! М. Чехов». Свидетельством этого путешествия в «места невыносимых страданий» явилась книга А.П. Чехова «Остров Сахалин» [4].

Едва ли не самым важным для того времени результатом, который повлекла за собой публикация книги, было то, что она, по мысли Дорофеева, «обратила внимание к самому острову русских и иностранных исследователей, писателей и официальных лиц» [5], поэтому имеет не только политическое, соци-

ально-документальное, публицистическое, но и литературное значение. Для чеховедов одной из основных научных проблем остаётся изучение художественных особенностей, языка и стиля книги писателя «Остров Сахалин».

Прошло 125 лет после путешествия А.П. Чехова на Дальний Восток. Однако до сегодняшнего дня оно продолжает волновать многие умы мирового сообщества, не остающегося равнодушным к тому, каким оно, это путешествие, оказалось для самого писателя. Огромное количество работ, связанных с пребыванием Чехова на Сахалине, появилось в XX веке. Отсюда цель данной статьи – проследить масштабность интереса учёных к Чехову и его поездке на Дальний Восток, дающих возможность представить взгляды современных исследователей начала XXI века.

Важно отметить, что первые отклики на книгу появились, по словам О. Дорофеева, сразу же после её публикации в 1893 году в «Русской мысли» (Л. Лейзер, И.В. Ефимов, А.Ф. Кони, Н.С. Лобас и др.). Интерес к книге Чехова не угасал на протяжении XX века. В 40-80-е годы зазвучали имена чеховедов А. Дермана, М.Л. Семановой, В.В. Ермилова Т.С. Сергиенко, Е.З. Балабановича, А.Ф. Захаркина, И.Н. Сухих и многих других. Была обрисована, «несмотря на разнообразие и обилие приводимых фактов, зарисовок, сцен из сахалинской жизни», обобщённая объективная картина сахалинского «ада». Позже на новаторство Чехова-художника обратил внимание И.Н. Сухих, выделив в книге типичное, создающееся, по определению критика, как «образ-суммирование», «анекдот», «лейтмотивные ряды», «образ-обобщение», «образ реальности» [6].

Не повторяя общеизвестных фактов пребывания А.П. Чехова на дальневосточной земле, выделим, что практически все критики ссылались на письмо А. Суворину, в котором Чехов вынес самый суровый приговор реакционному режиму в России: «...Я отдал должную дань учёности и тому, что старые писатели называли педантством. И я рад, что в моём беллетристическом гардеробе будет висеть и сей жёсткий арестантский халат» (из письма от 2 января 1894 года).

Рубеж 80-90-х годов прошлого столетия знаменателен новыми работами о Чехове и его книге «Остров Сахалин». Исследователи Г.П. Бердников, И. Заряная, Б.Д. Лищинский по-новому взглянули на путевые заметки о Сахалине, занимающие особое место в художественной прозе писателя. Об этом свидетельствует, по мнению чеховедов, необычность фактического материала «записок»

Чехова: многопроблемность научно-публицистического, документального исследования, широта охвата действительности. Данные материалы достаточно изучены в литературоведении, тем не менее, задачи, решаемые учёными, обладают новизной постановки общей проблемы – выявить особенности художественного языка и стиля очерков Чехова «Из Сибири» и «Остров Сахалин».

Через 29 лет после выхода книги А.Ф. Захаркина «Антон Павлович Чехов» (1961), где был воссоздан маршрут путешествия Чехова на Дальний Восток и то восхищение, которое вызывали в нём красоты сибирской природы, в особенности Енисея и Забайкалья, появилась работа Б.Д. Лищинского «Путешествие с Чеховым» (1990). Она посвящена столетию путешествия А.П. Чехова на Дальний Восток и получила широкую известность в информационном пространстве России.

Автор приводит малоизвестные сведения о местах, которые посетил Чехов, о дальневосточниках – учёных, краеведах, революционерах, деятелях Общества изучения Амурского края, с которыми он встречался, достаточно подробно описывает путешествие писателя на Сахалин. Это и трудности, с которыми он столкнулся во время поездки, встречи и беседы с людьми об их тяжёлой жизни и маленьких радостях, без которых невозможно существование в этих суровых местах, и, конечно же, картины природы, так восхищавшие Чехова-путешественника. В предисловии автором указано, что «в 1890 году Антон Павлович, словно продолжая подвиг А.Н. Радищева, ровно сто лет назад совершившего путешествие из Петербурга в Москву (1790), продолжил его путь от Москвы до дальневосточной окраины России. На телеге и пешком он проделал тысячи вёрст по бездорожью, на лодках переплывался через бурные сибирские реки, на маленьком парходике по Тихому и Индийскому океанам объехал весь божий свет» [7].

По словам И. Заярной, книга «Остров Сахалин», построенная на научной основе, «не превращается в сухой научный отчёт...; она «воздействует на читателя эмоционально, именно как произведение художественно-документальное»; «Чехов-публицист неотделим от Чехова-художника» [8]. Действительно, тому есть подтверждение. О красоте природы Амура Чехов-путешественник писал родным 23 июня 1890 года: «Амур чрезвычайно интересный край. До чёртиков оригинален. Жизнь тут кипит такая, о какой в Европе и понятия не имеют. Она, т.е. эта жизнь, напоминает мне рассказы из американской жизни. Берега до такой

степени дики, оригинальны и роскошны, что хочется навеки остаться тут жить...»; «...Проплыл я уже по Амуру 1000 верст и видел миллион роскошнейших пейзажей; голова кружится от восторга»; «...Удивительная природа...» [9]. Правда, впечатление Чехова от экзотики Дальнего Востока омрачалось картинами пожаров амурской тайги, лесов Сахалина, сопровождавших его вплоть до самого острова: «И всё в дыму, как в аду». В 2008 году мы писали об этом в статье «Природа в восприятии А.П. Чехова (по книге «Остров Сахалин»)» [10].

Вполне закономерно появление в начале XXI века большого количества новых исследований о Чехове, проведение научных симпозиумов и конференций, посвящённых жизни и творчеству писателя, как в России, так и странах АТР (к 150-летию со дня рождения, к 100-летию годовщины со дня его кончины и др.). Российские и зарубежные учёные, краеведы вновь обратились к теме «Чехов и Сахалин», приводя много интересных, не известных широкому кругу читателей сведений из биографии писателя.

Так, обращает на себя внимание доклад историка Д.Т. Капустина «А.П. Чехов: Путешествие на Восток», с которым он выступил на международной конференции в университете Тангук (Корея, апрель 2005 г.), отметив, что «тема "Чехов и Восток" – новая в чеховедении, и пока делаются лишь робкие попытки её раскрытия. Между тем, многие направления исследований кажутся вполне очевидными, а именно: знания А.П. Чехова о Востоке, "восточная тематика" в его произведениях, публикации и переводы произведений писателя и драматурга в странах Востока и т.д.» [11]. Докладчик поделился своими более известными материалами о путешествии Чехова на Восток России (в Сибирь и на Сахалин) и менее известными – вокруг Азии (литература о Сахалине и соседних странах – Японии, Китае, Корее). Называется, например, трёхтомник "немца голландского подданства" Ф. Зибольда "Путешествие по Японии или описание Японской империи" (перевод Н.В. Строева, СПб, 1854), исследование К. Сокальского "Русская торговля в Тихом океане" и другие работы на немецком и французском языках. Капустин подчеркнул, что «Чехов собирался ехать именно на Восток, судя по приготовлениям, а не только на Сахалин. Причём, это была первая поездка Чехова за границу вообще. В январе 1890 г. был разработан маршрут – через Сибирь на остров и возвращение назад круглым путём через Нагасаки, Шанхай, Ханькоу, Манилу, Сингапур, Мадрас, Коломбо, Аден, Порт-Саид и Константинополь» [11].

К 150-летию со дня рождения А.П. Чехова редакция AIF.RU поместила на своём сайте отрывок из книги А.П. Кузичевой «Жизнь отдельного человека» (серия ЖЗЛ, 2010), посвящённый Сахалинской эпопее Чехова. На наш взгляд, это, скорее всего, размышления Чехова о своей и чужой жизни... «Чехов говорил, что начинает писать тогда, когда его память уже «процедила сюжет» и на ней, как на «фильтре» осталось только то, что важно или типично, – считает Кузичева. – Через пять лет после сахалинской поездки он признался: «Когда я теперь закрываю глаза, то вспоминаю всё до мельчайших подробностей, даже выражение глаз у нашего пароходного ресторатора, отставного жандарма». Убедительна позиция автора, что «настроение, навеянное Николаевском, сохранило память, и оно было не случайно. Чехов усилил чувство тоски упоминанием, что Амур «нахмурился и заволновался, как море», что «неистово воют гиляцкие собаки», что он поймал себя на вопросе, сходным с тем, что пришёл ему на ум на берегу Иртыша: «И зачем я сюда поехал? – спрашиваю я себя, и моё путешествие представляется мне крайне легкомысленным. И мысль, что каторга уже близка, что через несколько дней я высажусь на сахалинскую почву, не имея с собой ни одного рекомендательного письма, что меня могут попросить уехать обратно, – эта мысль неприятно волнует меня» [12].

И всё же Чехов продолжил своё путешествие. По словам Кузичевой, повествование о Сахалине «кажется собранием писем, которые Чехов словно писал домой, прямо по свежим впечатлениям. И в то же время – необыкновенным сплавом документов: дневника, воспоминаний, сведений, почерпнутых в книгах, статьях, мемуарах. Всё зримо, всё явлено – то крупно, то панорамно, то в диалогах, то в авторском пересказе, то в развёрнутой характеристике, то в деталях» [12].

В 2011 году И.Н. Егорчев пишет статью «Чехов и Владивосток» и отмечает, что писатель побывал во Владивостоке проездом с Сахалина в Одессу (15-19 октября 1890 г.). Автор сожалеет, что «никаких заметок того периода в местных газетах, освещающих пребывание А.П. Чехова во Владивостоке, не найдено». Первые отклики последовали уже после его возвращения в Европейскую Россию и были реакцией на появление в печати очерков «Из Сибири» (июнь-август 1890 года). А в декабре того же года на впечатления Чехова о дальневосточной земле «отреагировала газета «Владивосток», причём довольно

саркастически» [13]. Имеется в виду обширный стихотворный фельетон, опубликованный 2 декабря 1890 года в газете «Владивосток» под названием «Рефлексы зимы» за подписью ЦЭЦЭ (из разысканий Б.Д. Лищинского – это псевдоним офицера-артиллериста, сотрудничавшего с газетами «Владивосток» и «Дальний Восток» И.Д. Канукова). Заключительная часть фельетона, как считает Егорчев, была полемическим ответом Чехову о его нелестных отзывах о местной интеллигенции и «сибирских женщинах» (в то время «Сибирью» называлось всё пространство к востоку от Урала, то есть и нынешний Дальний Восток). Так что чеховское впечатление от «сибирских женщин» вполне могло быть распространено и на Владивосток.

Закончился 2015 год – год литературы, в этот знаменательный год исполнилось 155 лет со дня рождения А.П. Чехова и 125 лет первому его путешествию на Дальний Восток. Подведены некоторые итоги тому, что было написано об этом знаменательном событии и что осталось за пределами нашего исследования. Однако нельзя обойти вниманием тот факт, что к юбилейной поездке писателя на Восток 23 апреля 2015 года в Доме-музее А.П. Чехова в Москве открылась выставка, на которой было представлено несколько десятков фотографий, привезённых Чеховым из этой поездки, и некоторые личные вещи классика. Каждый предмет подлинный, у каждого своя история: телеграмма с известием о смерти брата послужила мотивом для перемены мест – писатель уехал из Москвы на Сахалин. Статистические карточки служат доказательством его общения с каторжниками и ссыльными. Он побывал в восьми тюрьмах и в трёх тысячах изб. Чехов был инициатором одной из первых переписей заключённых. Здесь же рукопись итогового труда об острове Сахалин. Книга стала для общества событием, а для каторжных и ссыльных – предвестником реформ. Путь Чехова по Востоку отражён в полусотне фотографий. «Уезжает он с Сахалина через три месяца, как и планировалось, – рассказал заведующий отделом Дома-музея Чехова Эрнест Орлов. – У него был составлен график, маршрут. И он от него практически не отклонился. Только один пункт не удалось посетить. Это Япония. Там разразилась эпидемия холеры. И пароход «Петербург», на котором плыл Чехов, проплыл мимо на полном ходу» [14].

Итак, многое ещё в понимании культурного наследия прошлого предстоит изучить, объяснить, поразмышлять о жизни.... И в этом, на наш взгляд, поможет один из культурных достопримечательностей в Южно-Сахалинске – Музей книги

А.П. Чехова «Остров Сахалин». Имя А.П. Чехова и его книга стали своеобразными символами города, а музей играет важную роль в популяризации и сохранении наследия писателя на Сахалине [15]. Вполне закономерно, что через отношение Чехова к Дальнему Востоку, способности его эстетически воспринять и воспроизвести природу Сахалина, через отношение к людям, жившим когда-то на острове в «великой нужде», определяется не только правдивость его рассказа о трудностях и лишениях «ссылных каторжан», но и выявляется огромная любовь писателя-гражданина к своей Родине – России.

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Ametov Temirbek Almasbaevich,

Nukus State Pedagogical Institute named after Ajiniyaz,

Senior Scientific Research Worker – an Applicant

Analysis newest history Karakalpakstana

Аметов Темирбек Алмасбаевич,

Нукусский государственный педагогический институт

имени Ажинияза, старший научный сотрудник-соискатель

Изучение новейшей истории Каракалпакстана

С обретением независимости первым трудом обобщающего характера историков Каракалпакстана была «Новая история Каракалпакстана» [1]. Авторский коллектив расценивал написание данного труда, как «начало большой работы по воссозданию подлинной истории народа, раскрытию его роли и места в мировой цивилизации». Отсюда проистекало стремление авторов придать новизну публикуемому материалу, а также выявить и интерпретировать ранее замалчиваемые факты и документы. Важной особенностью данного издания, обусловленной характером наступающей эпохи, было то, что в нем получило воплощение разнообразие идейно-мировоззренческих позиций авторов. Тем не менее, работа производит впечатление цельного, выдержанного в академических традициях издания. Во многом это заслуга исследователей, работавших над освещением в монографии различных проблем периода новой истории. Таким образом, был подведен определенный итог развития исторической науки Каракалпакстана. В книге получили освещение многие концептуальные вопросы новой истории Каракалпакстана. Был проведен глубокий исторический анализ ключевых проблем отечественной истории второй половины XIX – нач. XXI вв. Это помогло выверить исходные идейно-методологические позиции, продемонстрировать виртуозное владение историографическими концепциями и фактологическим материалом, дать оценку качеству и глубине осмысления отечественной истории на этапе провозглашения суверенитета республики.

Выход в свет книги академика С.К. Камалова [2] свидетельствует, что к числу фундаментальных проблем, имеющих первостепенное значение, безусловно отнесено происхождение каракалпакского этноса и становление его государственности.

В настоящее время новейшие исследования отечественных историков позволяют намного углубить в хронологическом плане корни этого процесса. Следует твердо уяснить: чтобы история Каракалпакстана не представляла собой клубок сплошных неразрешимых противоречий, необходимо вести исследование ее основных проблем с учетом вышеуказанного фактора. Основным приоритетом при решении всех кардинальных вопросов должна выступать включенность в общетюркскую историю.

Становление и развитие научных школ С. Камалова и В. Ягодина заложили основу подготовки научных кадров и воспитания молодой плеяды ученых-исследователей. В 1994 году при Институте истории, археологии и этнографии Каракалпакского отделения Академии наук Республики Узбекистан был открыт Специализированный Совет К.015.30.01. по защите диссертации на соискание ученой степени кандидата исторических наук по специальности 07.00.01 – История Узбекистана. Это был крупный шаг ученых Каракалпакстана и Хорезмской области в деле продвижения новых научных проектов и подготовки кадров. К настоящему времени защищены 55 кандидатских диссертаций. Превалируют кандидатские диссертации по отечественной истории — 41; по археологии — 7; по этнологии — 7 [3].

Годы независимости и суверенитета обусловили всплеск неподдельного интереса народа к своей истории. Принимая во внимание подлинную ценность каждого периода отечественной истории, можно констатировать, что мощный поток интереса концентрируется именно в периоде новой истории. Феномен народного сознания цепко хранит в памяти имена и события именно этой эпохи, по которой отложились большие массивы, неплохо сохранившихся и еще ждущих своих исследователей архивных материалов, размещенных в архивохранилищах Каракалпакстана, ближнего и дальнего зарубежья.

На современном этапе перед историками нового времени открывается богатое поле деятельности по раскрытию и освещению самых разнообразных про-

явлений жизни нашего общества. Поэтому на повестке дня стоит вопрос о продолжении активной деятельности по поиску, выявлению и введению в научный оборот новых научных данных, относящихся к истории Каракалпакстана.

На современном этапе своего развития историография переживает своеобразную теоретико-концептуальную эволюцию. Ее квинтэссенцией стал отход от монологического объяснения исторического действия и освоение его плюралистической интерпретации. В полной мере эти глубоко позитивные для историографической эволюции процессы развиваются и в отечественной историографии. Именно в контексте методологических перемен, происходящих в науке, будут разрабатываться проблемы, которые и составляют комплекс каждодневных забот ученого: этногенез, этническая история и антропология народа, история государственности, национально-освободительные движения (события и лидеры) и т.д.

Нужно вести огромную работу по разработке и освоению методологических инноваций и теоретико-концептуального инструментария, выступать инициаторами проведения научных конференций и "круглых столов". Новейшая история Узбекистана и Каракалпакстана – сравнительно новое направление в исторической науке. В силу этого, она еще не имеет законченного институционального характера, т. е. не выделена в полностью самостоятельную научную дисциплину со своей методологией и учебно-методическим обеспечением. Этот пробел важно устранить в кратчайшие сроки. Новейшая история, с одной стороны, является историей обретения независимости и строительства нового государства. Поэтому ее точка отсчета – период распада советской системы и вызванный этим серьезный геополитический кризис. С другой стороны, новейшая история совпадает с новым этапом в развитии всего человечества, когда на наших глазах формируется принципиально новый миропорядок.

Новейшая истории Узбекистана, с одной стороны, является историей обретения независимости и развития государства – Республики Узбекистан. Поэтому точка отсчета новейшей истории Узбекистана – 1989 год, период последнего десятилетия советской тоталитарной системы, опасных событий для Узбекистана, в основе которых лежали обанкротившаяся административно-командная система, политика игнорирования национальных, экономических, социальных интересов республики, катастрофическое ухудшение социально-экономиче-

ской и экологической ситуации, уровня жизни людей, в первую очередь из-за монокультуры хлопка. Такой сложный период истории Узбекистана характеризуется появлением на политической арене лидера новой генерации, в лице Ислама Абдуганиевича Каримова, благодаря грамотной, взвешенной политике которого были защищены интересы республики, удалось уберечь страну от политического и экономического коллапса, внутренних и внешних конфликтов. Результат - объявление Узбекистана независимым государством в 1991 году.

Важность изучения новейшей истории определяется тем, что она направлена на осмысление событий, непосредственно оказывающих влияние на современную жизнь. Какова историческая значимость и в чем сущность этих событий, какова роль в них тех или иных политических деятелей, каковы были возможные сценарии развития этих событий и как связаны эти события с современными процессами? – вот некоторые из тех вопросов, на которые должна дать ответ новейшая история. Кроме того, поскольку новейшая история тесно связана с современностью, в ней заложен прогностический потенциал, позволяющий увидеть тенденции, связанные с будущим [4].

Во второй половине 80-х годов XX века наступил коллапс национальной политики советского государства и межнациональные столкновения. Хлопковая монокультура в экономике Узбекистана оказала негативное влияние на социальное положение населения республики. Началась новая волна репрессивной политики Центра в Узбекистане. Негативное влияние «Хлопкового дела» («Узбекского дела») на социально-политическое положение республики привело к Ферганским событиям 1989 г. [5].

Принятая в 1992 г. Конституция независимого Узбекистана выступала как гарантия системы безопасности и стабильности. Проблемы региональной безопасности решалась путем сотрудничества Узбекистана с СНГ и ШОС, США и НАТО.

Была разработана концепция и принципы «узбекской модели» социально-экономических преобразований, которые получили мировое признание.

На начальном этапе структурных экономических преобразований формировалась многоукладная экономика. Углублялись процессы приватизации и формирования конкурентной среды, создавался полноценный рынок ценных бумаг и недвижимости; расширялся слой реальных собственников. Была достигнута энергетическая и зерновая независимость.

Важное значение имел синтез национальных и общечеловеческих ценностей в создании демократического общества в Узбекистане. Укрепление и развитие нравственного духа народа – важнейшая задача государства и общества в Узбекистане. Изменилось отношение к великим предкам, историческим личностям в годы независимости. Начали празднование юбилеев исторических городов в международном масштабе.

Общество начало понимать, что угроза духовно–моральным ценностям — угроза самобытности и будущему. Разрабатывались основные принципы государственной политики в области образования. Была принята «Национальная программа по подготовке кадров». Повысилась роль и деятельность РИКЦ и НКЦ по развитию национальных культур и укреплению межэтнического согласия в Республики Узбекистан. Толерантность и согласие выступали как важный фактор демократизации общества.

Главная цель внешнеполитического курса Узбекистана – укрепление независимости и суверенитета государства, отстаивание национальных интересов, упрочнение безопасности и стабильности в регионе, формирование благоприятных внешнеполитических условий для устойчивого развития Узбекистана, укрепление его международного авторитета.

Общепонимание потребности в объективном взгляде на историю Узбекистана и Каракалпакстана в период независимости ощущается все более настоятельно. В поворотный момент история в наибольшей степени должна выполнять свою основную функцию — роль социальной памяти общества.

Однако создать единый и целостный курс новейшей истории Узбекистана и Каракалпакстана — нелегкая задача. Особенность новейшей истории состоит в том, что она как бы опалена горячим дыханием современности.

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Anatoliy Opletin,

Perm National Research Polytechnic University,

Candidate of the Pedagogical Sciences, Associate Professor

Students occupation by valeology and physical culture in high school

Анатолий Оплетин,

Пермский национальный исследовательский политехнический

университет, кандидат педагогических наук, доцент

Занятия студентами валеологией и физической культурой в вузе

С изменением ритма жизни современному студенту не всегда удается вести здоровый образ жизни, следить за правильным питанием, выполнять элементарный комплекс психогигиенических средств, упражнений для физического и психического здоровья, развития и саморазвития личности. Все это ведет к нарушению жизненных функций организма, к ухудшению работы внутренних органов и ослаблению нервной системы. Но для того, чтобы поддерживать организм в физической форме, недостаточно тренировать его, выполняя определенные упражнения, необходимо, также, наблюдать и прислушиваться к внутреннему состоянию организма.

Валеология принципиально отличается от других наук, изучающих состояние здоровья человека. Это отличие заключается в том, что в сфере интересов валеологии находится здоровье и здоровый человек, в то время как у медицины — болезнь и пациент, а у гигиены — среда обитания и условия жизнедеятельности человека. Отсюда исходят и существенные различия в основополагающих посылах каждой из этих наук в предмете, методе, объекте, целях и задачах. Актуальность данного исследования заключается в том, что в современном мире здоровье человека находится в факторе риска из-за загрязнения окружающей

среды, особенно в промышленных городах, нерационального питания, различных стрессов. Все это способствует ухудшению здоровья и, как следствие, снижению успешности в учебной деятельности, которая, в свою очередь, за счет нагрузки студентов ведет к стрессу, ухудшению психического и физического здоровья. Знания валеологии направлены на максимальное использование унаследованных механизмов и резервов жизнедеятельности человека и поддержание на высоком уровне адаптации организма к условиям внутренней и внешней среды организма. В теоретическом плане цель валеологии — изучение закономерностей поддержания здоровья, моделирование и программирование на достижение здорового образа жизни. В практическом плане валеологию можно видеть в разработке мер и определении условий для сохранения и укрепления здоровья [1, с. 34; 3; 4; 5; 6].

Возникший в процессе эволюции органического мира феномен человека стал предметом исследования огромного множества естественных и общественных наук, таких как философия, биология, физиология, гигиена, физическая культура, генетика, история, социология, экономика, психология, педагогика [1, с. 26]. Однако до сих пор молодое поколение не может полностью осознать принципы существования, основы правильного жизненного функционирования и мироздания. В полной мере это относится к одной из основополагающих сторон его жизнедеятельности нравственного, психического, физического здоровья. Центральной проблемой валеологии, физической культуры является отношение к индивидуальному здоровью и воспитание культуры здоровья в процессе развития и саморазвития личности занимающихся [3, 5, 6].

Методом валеологии является исследование путей повышения резервов здоровья человека, которое включает в себя поиск средств, методов, технологий по формированию мотивации на здоровье, приобщение к здоровому образу жизни, физической культуре и спорту. Здесь важную роль играют качественная и количественная оценка здоровья и резервов здоровья студента, а также исследование путей их повышения.

Современная тенденция исключает возможность существования полностью здорового человека. В высших учебных заведениях обучаются студенты с временными или постоянными отклонениями здоровья. Заболевания имеют разную направленность:

1. Заболевания сердечнососудистой системы.

2. Заболевания опорно-двигательного аппарата.
3. Заболевания органов дыхания.
4. Заболевания органов зрения.
5. Заболевания мочеполовой системы.
6. Заболевания желудочно-кишечного тракта.
7. Заболевания эндокринной системы.
8. Травмы опорно-двигательного аппарата.

Одним из самых важных факторов успешности обучения студентов является состояние здоровья. Боль, дискомфорт, рассеянность, хроническая усталость – от всего этого зависит процесс обучения. Но и учебная деятельность влияет на здоровье студентов, так как нехватка сна и отдыха, стрессы и волнения сильно сказываются на самочувствии и состоянии студентов.

Студенты с ослабленным здоровьем часто менее способны добиться успеха в обучении. Это связано как с умственной деятельностью, так и с занятиями физической культурой. С помощью валеологии студент способен познакомиться с теоретической базой культуры тела, гигиены, диетологии, что в свою очередь позволит ему самостоятельно начать заботиться о состоянии своего здоровья [3,4,6].

С повышением активности и осознанием правил здорового образа жизни студент получает возможность самостоятельно следить за своим здоровьем, улучшать состояние организма, налаживать работу нервной системы и системы внутренних органов, а также предотвращать развитие болезней. Улучшение состояния здоровья приводит к нормализованной работе в учебной деятельности; студенты способны активно работать, они реже устают, внимательны и сосредоточены во время занятий, в целом повышается их умственная активность, улучшая процесс образования [3,4,5].

Таким образом, занятия физической культурой способствуют улучшению работоспособности студентов с ослабленным здоровьем, что является главным фактором успешности в учебной деятельности [3,4,5].

Беречь здоровье во время обучения в образовательном учреждении очень важно, поскольку именно в этот период закладывается основа грамотного специалиста, бакалавра, как главного звена успешной профессиональной деятельности.

Валеология - научная дисциплина, влияющая не только на сохранение физического здоровья нации, но и на моральное состояние личности, на нравственное, правовое воспитание студентов. Помимо занятий физической культурой, занятия валеологией способны повысить уровень здоровья в студенческом коллективе. Особенно это касается студентов с ослабленным здоровьем, для многих из которых занятия спортом противопоказаны. Валеология подходит для поддержания организма без тяжелых физических нагрузок. Во многом способом саморегуляции, аутогенной тренировки, медитации, элементов йоги, дыхательной гимнастики, традиционных и нетрадиционных методик оздоровления. Студент, используя знания валеологии в практике ФК, способен предотвратить болезнь, восстановиться после травмы, самостоятельно научиться контролировать и ощущать свои возможности организма [3,5].

Занятия валеологией, физической культурой способствуют успешности студентов с ослабленным здоровьем в учебной и трудовой деятельности, что позволяет им стать квалифицированными, грамотно обученными специалистами, бакалаврами, что в свою очередь позволяет вести компетентную профессиональную деятельность на высоком и профессиональном уровне.

Зная о влиянии на наш организм различных стрессогенных факторов внешней и внутренней среды, учитывая их в повседневной жизни, занимаясь валеологией, физкультурой, мы можем самостоятельно и осознанно сделать выбор образа жизни, повысить свой жизненный статус, улучшить состояние своего здоровья, не прибегая к средствам медицины [2, с. 89; 6].

Валеологическое образование синергетически связано и взаимодействует с физическим, умственным, профессиональным, политическим и др. Такое взаимодействие способствует специфической подготовке студентов к выполнению своих личностных и социальных обязанностей в обществе, государстве.

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Anahit Gevorgyan,

Armenian State Pedagogical

University named after Khachatur Abovyan, Lecturer,

Candidate of Pedagogical Sciences, the Faculty of Art Education,

Susanna Petrosyan,

Armenian State Pedagogical University named after Khachatur Abovyan,

Assistant, the Faculty of Art Education

***Educational-cognitive practice in the musical-
pedagogical activity (on the example of Armenian State
Pedagogical University named after Khachatur
Abovyan)***

Геворгян Анаит,

преподаватель Армянского

государственного педагогического

университета имени Хачатура Абовяна,

кандидат педагогических наук,

факультет художественного образования,

Петросян Сусанна,

ассистент Армянского государственного педагогического

университета имени Хачатура Абовяна,

факультет художественного образования

***Учебно-познавательная практика в музыкально-
педагогической деятельности (на примере
Армянского государственного педагогического
университета им. Хачатура Абовяна)***

Практика является важной частью учебной деятельности студента. Знания, полученные в процессе образования, он реализует на практике, приобретая

опыт в той или иной специальности. Для этого каждый ВУЗ предоставляет определенный процент в учебных планах, тем самым способствуя саморазвитию студента в выбранной профессии.

Армянский государственный педагогический университет имени Хачатура Абовяна города Еревана (Республика Армения) организует практику бакалавров в течение четырех семестров, начиная со второго полугодия второго курса. Практика делится на две части:

1. Учебно-познавательная практика.
2. Педагогическая практика.

В нашей статье рассмотрим поэтапное проведение учебно-познавательной практики в музыкально-педагогической деятельности первой части практики. Учебно-познавательная практика руководствуется методистом по специальности (преподавателем кафедры Музыкальной педагогики), психологом (преподавателя кафедры Психологии развития и прикладной психологии) и педагогом (преподавателям кафедры Теории и истории педагогики). Каждый руководитель имеет свой план работы. Ниже представляем план психолога и педагога.

План психолога:

- ознакомление с трудными ситуациями в педагогической деятельности, психологическими причинами их возникновения;
- разработка стратегии исправления и преодоления этих трудностей;
- изучение межличностных отношений учеников;
- оптимизация отношений родитель – классный руководитель – ученик;
- проявление особенностей отношений между педагогом и учеником в процессе урока;
- моделирование профессионального поведения в конфликтных ситуациях.

План педагога:

- составить план работы директора школы;
- составить план работы заместителя директора по специализированной образовательной поддержке (заместитель директора по воспитательной работе);
- составить план работы руководителей методических объединений;
- составить план работы классного руководителя.

Функцией методиста является создание объединяющего звена между студентами, психологом и педагогом. Но, кроме этого, методист разрабатывает свой план, который включает следующие задания:

- изучение деятельности библиотекаря;
- изучение деятельности логопеда, медсестры и психолога;
- ознакомление с деятельностью продленного дня;
- присутствие на родительском собрании;
- проведение мероприятия.

Более подробно опишем цели и задачи проведения мероприятий, так как мероприятия являются важной неотъемлемой частью школьной жизни. Мероприятия проводятся в целях:

- интеграции разных видов искусств: музыка, литература, хореографическое искусство, театр, декоративно-прикладное искусство, живопись;
- патриотического воспитания учащихся; формирования и развития нравственно-эстетического идеала у школьников;
- становления сценического поведения будущего педагога-музыканта;
- формирования организаторских способностей и навыков студентов;
- создания праздничной среды в образовательно-воспитательной деятельности.

Задачами мероприятия являются:

- способствовать формированию этнического мышления учащихся;
- изучить традиции разных культур;
- способствовать формированию и развитию становления личности учащихся;
- приобщаться с разными видами искусств;
- проявлять силу воли во время выступления, представляя весь материал в идеальном виде.

Мероприятия проводились по двум направлениям:

- формированию и развитию национального самосознания у школьников и студентов;
- формированию и развитию межнационального поликультурного диалога у школьников и студентов.

Ниже приводим примеры по двум направлениям. Темы для мероприятий выбираются по тематическому принципу, исходя из национальных и международных в данном полугодии.

Пример 1: Мероприятие, посвященное национальному празднику Святой Пасхи (Սուրբ Զատիկ). Целью мероприятия была представление всеми любимого праздника, которому предшествуют несколько праздников. У армян Пасха начинается с праздника Барекендан (Բարեկենդան). Этот праздник начало весны. Обычно Барекендан начало весны.

Для проведения мероприятия студенты с руководителем составили план, в который включили:

- короткий рассказ по теме о празднике;
- музыкальные номера;
- постановку сказки.

Студенты включили в программу постановку сказки «Барекендан» комедийного жанра армянского сказочника Ованнеса Туманяна. Национальный колорит мероприятия особенно ярко выражается в наличии костюмов и атрибутов к данному празднику, которые по обычаю использовал армянский народ. Музыкальные номера выбирали из народных «обрядовых песен».

Пример 2: Мероприятие, посвященное 100-летию Геноцида армян. Это страшное трагическое событие 20-го века поразило своей жестокостью все народы мира. День памяти жертв Геноцида отмечается 24-го апреля, так как в этот день были казнены около 200 представителей армянской интеллигенции – писателей, ученых, музыкантов и т.д. Спустя несколько лет после жестоких событий сыновья армянского народа во главе Согомона Тейлеряна осуществили «Операцию Немезис», целью которой было восстановление справедливости и отмщение за истребление армянского народа. 7 лидеров, возглавляющий процесс уничтожения армянского народа, были расстреляны армянскими сыновьями, и почти все были оправданы. Всю эту историю представили студенты и ученики средних классов. Также рассказали о Памятнике жертвам Геноцида, об архитектурно-композиционном решении здания. Участники мероприятия исполнили армянские народные песни, песни про Родину, а в конце мероприятия прозвучала песня «Налей вино» («Գինի լից»), где поется об «Операции Немезис», а в конце песни как-будто восстанавливается справедливость.

Пример 3: Мероприятие под названием «Мир празднует Новый Год». Целью данного мероприятия было просвещение студентов и школьников о том, как разные страны мира празднуют новый год с традициями разных народов. Этот

замечательный и волшебный праздник празднуют везде, несмотря на национальность и религию. Были представлены следующие страны: Англия, Франция, Италия, Польша, Шотландия, Германия, Португалия, Греция, Колумбия, Шри-Ланка, Бирма, Гвинея, Индия, Япония, Израиль и Армения. Представляя каждую страну, на презентации были показаны фотографии главных городов с новогодними освящениями и украшениями. Музыкальные номера прозвучали на разных языках: армянский, английский, французский.

Планируя каждое мероприятие, студенты не забывали об организаторских вопросах. Результаты проведенных мероприятий были следующими: проведение таких мероприятий показало устойчивую тенденцию роста интереса к истории своей родины и разных стран. Ученики и студенты стали более осмысленно изучать историю своей страны, традиции армянского народа, организовывать экскурсии в исторические музеи. Увеличился интерес к традициям, культуре разных народов мира, что способствует развитию межнационального поликультурного диалога.

Таким образом, учебно-познавательная практика включена в программу как подготовительный этап к педагогической практике и представляет собой комплекс систематизированных действий студентов с учениками и педагогами данной школы, тем самым способствуя становлению учителя-музыканта.

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Anna Simonyan,
*Armenian State Pedagogical University
named after Kh. Abovyan, Lecturer,
the Faculty of Preschool Education*

***Development of cognitive interest of preschool children
in the process of multicultural education***

Симонян Анна Ашотовна,
*Армянский государственный педагогический
университет имени Хачатура Абовяна,
преподаватель, факультет начального образования*

***Развитие познавательного интереса
дошкольников в процессе поликультурного
воспитания***

Сегодня общепринято, что будущее нашей республики во многом зависит от судьбы ее образования. Кризис образования во многом связан с тем “нравственным вакуумом”, в котором оказалось новое поколение. Отбросив прежние идеалы, мы так и не выработали новых, и оказались как бы вообще без мировоззрения. Но поколение, выросшее без идеала, не может двигаться по пути социального прогресса.

Поликультурное воспитание – это воспитание ребенка на культуре народов региона, где проживает малыш, с приоритетом для него культуры его национальности.

Проблема поликультурного воспитания дошкольников в современных условиях развития поликультурного общества приобретает особую актуальность.

Приобщение ребенка к миру человеческих ценностей обеспечивает формирование толерантности, осознание ребенком своей принадлежности к мировым культурным ценностям.

Поликультурное воспитание – составной элемент мировоззрения человека, способ формирования открытой, понимающей и принимающей позиции человека при общении с разными культурами, формирование отношения к своему народу, другим народам с помощью доступных детскому пониманию средств материальной и духовной культуры [4].

Поиск и разработка изменений в дошкольном образовании закрепляют ряд методических рекомендаций и нормативно-правовых документов, вышедших в последние годы. В частности Закон “Об образовании”, рекомендации по экспертизе образовательных программ дошкольных образовательных учреждений.

О формировании готовности личности к взаимодействию в многокультурной среде говорится в Законе «Об образовании» Республики Армения. «Образовательная система Республики Армения направлена на укрепление духовного и интеллектуального потенциала армянского народа, сохранение и развитие национальных и общечеловеческих ценностей» (статья 4.3.), «Принципами государственной политики в области образования являются... гуманистический характер образования, приоритет общечеловеческих ценностей; в международную образовательную систему (статья 5.4.)».

Очевидно, что многокультурное общество испытывает потребность в новом мировоззрении, направленном на интеграцию культур и народов с целью их дальнейшего сближения и духовного обогащения. Все это обосновывает значимость поликультурного образования, целью которого выступает формирование человека культуры, творческой личности, способной к активной и продуктивной жизни в поликультурной среде.

Базовым учреждением поликультурного образования является дошкольное учреждение, так как именно здесь общей основой воспитания и обучения является овладение родной и русской речью, становление основ мировоззрения, национально-культурной и гражданской идентичности, духовно-нравственное развитие с принятием моральных норм и национальных ценностей.

Изучение теории и практики поликультурного, патриотического, национального и межнационального воспитания детей показало, что эта проблема была актуальной на протяжении всей истории развития педагогики. Однако решалась она по-разному, в зависимости от социально-политических требований общества. В современном понимании интернациональное (межнациональное) воспитание трактуется как расширение национального до осознания

своей общности с многочисленными нациями. Национальное воспитание рассматривается как проблема фактора идентификации [2].

А.Н. Джуринский рассматривает поликультурное воспитание как альтернативу интернациональному социалистическому воспитанию, формирование личности вне национальной культуры при условии единства и идеологической интеграции общества. При этом, поликультурное воспитание делает акцент на взаимосвязи культур, одна из которых доминирует.

М.А. Богомолова исходит из того, что поликультурное образование по своей сущности близко к межнациональному воспитанию и предусматривает межличностное взаимодействие, противостоит национализму и расизму. Оно направлено на освоение культурно-образовательных ценностей. В свою очередь, В.В. Макаев, З.Л. Малькова, Л.Л. Супрунова отождествляют поликультурное воспитание с формированием личности человека, способного к активной и эффективной жизнедеятельности в многонациональной и поликультурной среде, обладающего развитым чувством понимания и уважения других культур, умением жить в мире и согласии с людьми разных национальностей, рас, вероисповеданий [3].

В дошкольных образовательных учреждениях Армении накоплен положительный опыт воспитания детей в условиях поликультурного образовательного пространства.

Мы провели ряд занятий, целью которых было воспитание уважения к истории и культуре своего и иного народа. Мы побывали в детском саду №2 Вайоц Дзорской области и проводили занятия в старшей группе. Занятия сопровождались презентациями.

В результате, дети начали проявлять большой интерес к другим нациям, их традициям.

Познавательное-развивающее занятие для старшей группы по поликультурному воспитанию на тему: «Россия».

Программное содержание:

1. Глубокое и всестороннее овладение дошкольниками культурой своего собственного народа как неременное условие интеграции.
2. Формирование у дошкольников чувства национального самосознания, достоинства.

3. Познакомить с Россией, ее особенностями: традициями, обычаями, национальной одеждой.
4. Познакомить с символикой этой страны: флаг, гимн, герб; главным городом – Москвой.
5. Воспитывать добрососедские чувства к жителям России.
6. Формирование и развитие умений и навыков эффективного взаимодействия с представителями различных культур.
7. Воспитание уважения к истории и культуре своего и иного народа.

Материалы и оборудование: карта России, портрет президента России, герб Москвы и России, аудиозапись колокольного звона, боя часов на Спасской башне, хода часов; слайд-шоу (Московский Кремль, Красная площадь, Метрополитен, Могила неизвестного солдата, Московский цирк, Спасская башня, Архангельский собор и т.д.), разрезные картинки для каждого ребенка.

Ход занятия:

Воспитатель вносит кукол, одетых в национальные армянские и русские костюмы.

- Дети, сегодня мы с вами поговорим об одной стране. Посмотрите, пожалуйста, какой национальности костюм на этих куклах? (показывает кукол в армянском костюме).

- Почему вы думаете, что эти куклы в армянском костюме? (*рассматривают костюм*).

- Сегодня к нам пришли еще две куклы, посмотрите на их костюмы (*рассматривают*).

- Эти куклы русские. Их зовут Ольга и Олег.

Давайте посмотрим, чем отличаются и чем похожи костюмы этих кукол.

/ Ответы детей /

Воспитатель: Ребята, сегодня мы отправимся в путешествие. Сегодня мы побываем в Москве (*Педагог обращает внимание детей на выставку иллюстраций о Москве*).

Об этом городе говорят так: «Москва - белокаменная, златоглавая, красноречивая, хлебосольная и приветливая». Давайте пройдем по самому центру Москвы, по Кремлю и Красной площади, и разберемся, что значит каждое из этих слов.

Воспитатель: Москва по-особенному разговаривает с горожанами и своими гостями. Послушайте запись колокольного звона, боя часов на Спасской башне, хода часов.

(Дети слушают запись и рассматривают слайды с видами Москвы).

Воспитатель: «Дети, как вы считаете, правильно ли то, что какой-то один из городов называют главным или нет?» *(Ответы детей).*

Все города хороши по своему, но как в любой семье бывает кто-то, кого больше всего слушаются, так и должен быть город, в котором решаются важные для всей страны вопросы и принимаются важные по этим вопросам решения. А иначе будет полная неразбериха и хаос в стране. Но еще на главном городе страны лежит и очень большая ответственность, от него ждут помощи и защиты.

Воспитатель: Рассмотрите изображение герба Москвы и Армении. Давайте поделимся на две группы и соберем гербы из разрезных частей. Молодцы! Вот перед вами – гербы России и Армении.

Воспитатель: А теперь поиграем в подвижную игру «Самолеты».

Итак, наше путешествие закончилось. Мы побывали в столице России, составили гербы России и Армении. Давайте угощать наших гостей традиционной армянской едой и фруктами. Думаю, что они будут очень рады и довольны.

(Звучит песня «Сладкий виноград Армении» («Հաշիտա՞նի անձ խաղաղ»)). Дети поют и танцуют с куклами).

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Kudrin Anton,

Perm National Research Polytechnic University,

Candidate of Legal Sciences,

the Department of Philosophy and Law;

Perm Branch of RANEPА,

Department of Labour and Social Law

***To the question about types of power in public relations
in the sphere of use of hired labour***

Кудрин Антон,

Пермский национальный

исследовательский политехнический

университет, кандидат юридических наук,

кафедра «Философия и право»;

Пермский филиал РАНХиГС,

кафедра трудового и социального права

***К вопросу о видах власти в общественных
отношениях в сфере применения наемного труда***

Постановка научной проблемы и ее значение

Власть – это явление, характерное только для общества. Функционирование общественных отношений основано на наличии вертикальных и горизонтальных связей между их участниками. Вертикальные связи в социуме существуют благодаря власти, которой обладают управляющие субъекты. Власть характерна для всех сфер человеческой деятельности, что предопределяет научный и практический интерес к ней, в том числе и в отношениях в сфере применения наемного труда.

Анализ исследований обозначенной проблемы

Власть, будучи социальным явлением, исследовалась в рамках большинства социальных наук – философии, политологии, социологии и юриспруденции.

Среди представителей правовой науки применительно к тематике статьи актуальны работы Н.И. Матузова, А.В. Малько, Н.М. Кейзерова, Л.С. Таля, Н.М. Коркунова и других.

Цели и задачи статьи

Целью данной статьи является рассмотрение различных точек зрения на понятие «власть», выделения различных видов власти в зависимости от сферы жизни общества, а также изучение проявления обозначенных видов власти в общественных отношениях в сфере наемного труда.

Для достижения данной цели решались следующие исследовательские задачи: проанализирован ряд точек зрения по поводу понятия «власть»; выделены виды власти в зависимости от сферы жизни общества; определены проявления различных видов власти в общественных отношениях по поводу использования наемного труда.

Основной материал

Следует начать с того, что «власть – это уникальный социокультурный феномен, являющийся порождением и созданием человека и общества. Она оказывает едва ли не решающее влияние на судьбы как отдельного человека, так и общества в целом... Власть является условием существования общества, совместной жизни людей» [1].

Власть можно характеризовать как «способность и возможность оказывать воздействие на деятельность и поведение людей посредством воли, авторитета, права или насилия» [2].

Власть – «это один из важнейших видов социального взаимодействия, специфическое отношение по крайней мере между двумя субъектами, один из которых подчиняется распоряжениям другого, в результате этого подчинения властвующий субъект реализует свою волю и интересы» [3].

А.В. Малько под социальной властью понимает «присущее всякой общности людей отношение господства и подчинения между субъектами, опирающееся на принуждение» [4].

Между тем, социальная власть – это не только подчинение одного другому, основанное на принуждении и насилии, но и возможность создания субъектами одной модели поведения, где оба субъекта власти равны, их воли сопоставлены, деятельность основана на праве. Речь идет о взаимодействии государств на международной арене при заключении и исполнении двусторонних и

многосторонних международных договоров и функционировании международных межправительственных организаций, а также деятельности социальных партнеров в рамках общественных отношений, входящих в предмет трудового права.

На основании изложенного представляется, что социальную власть следует понимать как способность и возможность одних субъектов (индивидов, их объединений) формировать должное поведение других субъектов (индивидов, их объединений), а также общую для них модель поведения путем убеждения и (или) принуждения в целях обеспечения соблюдения социальных норм при наличии возможности применения к субъектам в случае нарушения данных норм мер юридической ответственности.

Выделяют следующие виды власти в зависимости от сферы жизни общества: экономическую, политическую, духовную (идеологическую) и др.

В качестве политической власти выступает «совокупность механизмов и средств, способов определяющего воздействия политических субъектов, в первую очередь государства, на поведение социальных общностей, людей, организаций с целью управления, координации, согласования, подчинения интересов всех членов общества единой политической воле посредством убеждения и принуждения» [5]. Политическую власть представляют объединения людей, реализующие свои интересы в рамках политической системы: общественные организации, политические партии, профсоюзы и т.п., представляющие интересы больших социальных групп по наиболее важным общественным вопросам, а также ведущие борьбу за государственную власть (например, участие политических партий в выборах в законодательный орган власти).

Отдельную разновидность власти представляет собой государственная (публично-правовая) власть, которая, по сути, стоит «выше» других видов властей, в том числе политической [6].

Государственная власть характеризуется как «способность государства, его структур с помощью легитимных средств подчинять поведение отдельных индивидов, групп людей или всего общества общей (государственной) воле» [7]. Н.М. Коркунов определял государственную власть как «силу, обусловленную сознанием гражданами их зависимости от государства, в результате которой граждане подчиняются велениям отдельных лиц, признаваемых органами государственной власти» [8].

Следует заметить, что иной разновидностью публичной власти в России выступает власть органов местного самоуправления.

В качестве самостоятельного вида социальной власти следует выделить экономическую власть, которую можно определить как способность и возможность одних субъектов определять поведение других субъектов в сфере производства, обмена, распределения материальных благ.

Между тем, экономическая власть не сводима только к господству собственника средств производства в общественных отношениях, входящих в предмет трудового права, к использованию рабочей силы в рамках общественной организации труда. Экономическая власть проявляется и в конкурентной борьбе собственников на рынках друг с другом, заканчивающейся концентрацией капитала в руках наиболее сильных, появлению монополий.

Природу социальной власти – власти работодателя, существующую в общественных отношениях по поводу применения наемного труда, наиболее четко раскрыл видный российский ученый Л.С. Таль, определив ее «как хозяйскую власть» [9].

Хозяйская власть, появившись как господство фабриканта над наемным работником, имея сугубо частный характер, выражавшая его личный экономический интерес, вместе с развитием государства и общественных отношений, входящих в предмет трудового права, прошла эволюцию до демократических форм взаимодействия работодателя и работника, когда работник и работодатель, по сути, становятся полноправными сторонами трудового договора.

На сегодняшний день государство признает за работодателем право устанавливать нормы поведения в порядке и условиях, предусмотренных трудовым законодательством (ст.ст. 8, 22 Трудового кодекса РФ), наделяет его дисциплинарной властью (возможностью наказывать и поощрять работников и т.п.). В тоже время, государство определяет пределы этой власти путем установления императивных гарантий для работников и контроля (надзора) за их исполнением.

Интересно отметить, что государственная власть, помимо осуществления контроля и надзора за соблюдением трудового законодательства, также рельефно проявляется в служебно-правовых отношениях, где стороной служебного контракта выступает представитель нанимателя, руководитель (начальник) органа исполнительной власти, осуществляющий полномочия от имени Россий-

ской Федерации, а данные отношения основаны на принципе субординации (соподчиненности). В рассматриваемом случае государство выступает как своеобразный работодатель через систему государственной службы.

На современном этапе власть работодателей усложняется благодаря возможности интеграции работодателей и работников, создания ими собственных объединений для представительства и защиты своих интересов.

С другой стороны, власть работодателя во многом минимизируется по отношению к труду отдельных категорий работников (надомников, дистанционных работников), так как они самостоятельно организуют свой процесс труда, не находясь под прямым контролем работодателя. Работодатель, в такого рода отношениях, выступает в большей степени не как «хозяин», а как партнер по договору. Происходит расширение договорных начал в общественных отношениях, входящих в предмет трудового права. Так, например, в случаях, предусмотренных законодательством, профессиональные спортсмены и лица, получающие образование за счет средств работодателя, обязаны выплачивать работодателю денежную компенсацию.

В связи с изложенным, полагаю, что власть работодателя в общественных отношениях, входящих в предмет трудового права, можно рассматривать как способность и возможность работодателя заключать трудовые договоры с лицами, ищущими работу, принимать правила внутреннего трудового распорядка, регулирующие правовое положение работников, поощрять работников, привлекать работников к дисциплинарной и материальной ответственности и т.п. в пределах, установленных законодательством.

Выводы

Подводя итог, следует отметить, что в общественных отношениях в сфере применения наемного труда существует государственная (публично-правовая) власть, власть работодателей, власть социальных партнеров, которые обеспечивают взаимный баланс интересов друг друга в целях обеспечения прав человека.

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Smakova Zaure,

*The Kazakh National Conservatory named after Kurmangazy,
the Associate Professor of Faculty of a Folk Music,
Managing Chair of a Kobyz and a Bayan,*

Rakhimzhan Asel,

*Kazakh National Conservatory named after Kurmangazy,
Master of Art Sciences, Teacher,
Faculty of Folk Music, the Accordion and the Department of Kobyz*

***Some musical and pedagogical aspects in the course
of training in playing a musical instrument,
on the example of the kobyz-prima***

Смакова Зауре,

*Казахская Национальная консерватория имени Курмангазы,
доцент факультета народной музыки,
заведующая кафедрой кобыза и баяна,*

Рақымжан Асель,

*Казахская Национальная консерватория
имени Курмангазы, магистр искусствоведческих наук,
преподаватель факультета народной музыки,
кафедры кобыза и баяна*

***Некоторые музыкально-педагогические аспекты
в процессе обучения игре на музыкальном
инструменте на примере кобыза-примы***

Хорошо известно, что способность к творчеству дана с рождения практически каждому. Однако известно и другое: будет эта способность развиваться или нет, зависит во многом от того, как сложится воспитание.

Выдающийся японский музыкант-педагог Шиничи Судзуки считает, что развитие личности можно сравнить с построением треугольника, основание которого – это начало жизни; именно в детстве человек обладает наибольшей восприимчивостью, которая определяет его способность к деятельности, к творчеству. Чем он старше, тем менее открытым и восприимчивым становится, - треугольник сужается. Вершина треугольника – это комплекс характера, свойств и различных качеств, который приобрел законченность для данного конкретного человека, утратив при этом в большой степени восприимчивость и гибкость. Можно ли избежать «сужения треугольника»? Можно ли уйти от того, чтобы творчество становилось (как это обычно происходит) уделом избранных? Судзуки, как и многие другие, считает, что можно. И современная музыкальная педагогика в лучших своих достижениях убедительно это подтверждает [1].

Главное, что следует учитывать, – необходимость постоянно поддерживать и развивать внутреннюю свободу, и на ней строить весь процесс воспитания и обучения. Тогда человек сохраняет большой запас непосредственности, способность к подлинно творческой деятельности - треугольник не замыкается на вершине.

Подготовка музыканта в большей степени зависит от поэтапного формирования в нем сложного сплава личностных, музыкально-профессиональных качеств, умений, навыков.

Однако наиболее уязвимой стороной здесь чаще всего оказывается слабое развитие тех компонентов, которые, составляя основу, базу обучения, должны быть заложены в самом начале обучения.

Поэтому на среднем и высшем этапах специального музыкального образования возникла и укоренилась практика «перестроек», «доводок», «переучивания», исправления всякого рода дефектов.

Отмеченные трудности и упущения в музыкальном образовании в значительной мере вызваны недостаточной разработкой целенаправленной методики сквозной подготовки специалистов-музыкантов в системе «школа - колледж - вуз» и, следовательно, слабой согласованностью педагогических воздействий, содержания и методов обучения на отдельных этапах.

В связи с этим не случайно в последнее время все чаще ставится вопрос о необходимости укрепления преемственности в подготовке музыкальных

кадров. Преемственность в воспитании и обучении музыканта – сложный процесс; он состоит в последовательном формировании, сохранении и качественном преобразовании социально ценных личных качеств, базовых компонентов музыкальных знаний, определяющих успешность поступательного овладения музыкальной деятельностью. Обеспечивается этот процесс функционированием разветвленной системы педагогических воздействий.

Преемственность – важнейшее условие реализации потенциальных способностей начинающего музыканта – в равной мере существенна как с точки зрения обучения профессионала, в отношении которого школа осуществляет т.н. предпрофессиональную подготовку, так и с точки зрения воспитания любителя, завершающего здесь свое музыкальное образование [2].

Главная цель всех занятий – наряду с обучением игре на инструменте, увлечь детей музыкой, всеми имеющимися средствами добиться того, чтобы они самозабвенно полюбили ее (в одних случаях - вообще, в других - как будущую профессию), и чтобы это чувство настоящей, осознаваемой любви сопровождало их всю жизнь.

«Традиционным» моментом в музыкально-педагогическом процессе является анализ, диагностика и прогнозирование путей исправления профессиональных недостатков. Очень многое зависит от профессионализма педагога, его умения заметить «прорастание» тех или иных недостатков, найти средства избавления от них. При этом важно определить причину «заболевания», а уже потом начинать «лечение».

Педагог должен видеть главную задачу и общую перспективу, как чисто техническую, так и музыкально-игровую. Каждый урок должен, поэтому, строиться по принципу «привязывания» того, что делается сегодня к тому, что делалось вчера и будет делаться завтра. К примеру, касаясь интонации, можно посоветовать ученику лишней раз проследить за локтем левой руки («рулевое движение»), напомнить, что малоподвижный локоть затрудняет игру, особенно межпозиционную, нарушает естественное положение пальцев, последнее же закономерно ведет к неточному интонированию, вялой и рыхлой технике, к общему плохому звучанию инструмента.

Трудно переоценить влияние на ход урока благоприятной психологической атмосферы в классе. Если ученик чувствует доброжелательность, спокойную уверенность наставника, он как бы вбирает, впитывает это в себя и с меньшими усилиями и затратами преодолевает трудности.

Процесс обучения игре на музыкальном инструменте, как известно, в основе своей двусторонний; при всей важности в нем места, которое занимает учитель, нельзя не учитывать факторы, связанные с учеником, с особенностями его характера, психоземционального склада, дарования. Здесь во многом определяющую роль играет степень готовности и умения учащегося проявлять творческую инициативу и самостоятельность; т.е. речь идет о деятельности ученика.

Следуя лучшим принципам музыкальной педагогики, учитель должен стремиться к тому, чтобы как можно быстрее и качественнее привить своим ученикам навыки самостоятельности, умение думать во время уроков и домашних занятий. Нужна кропотливая, тонкая, систематическая и целенаправленная учебная и воспитательная работа в обозначенном направлении. Только тогда может успешно решиться задача художественно-творческого развития учащихся. Мы считаем, что наряду с чисто учебными, дидактическими методами педагог должен создавать подлинно художественное впечатление у ученика; и такие впечатления должны вызывать чувства удовлетворения и радости, и подобное проявляется с особой силой тогда, когда сам ученик «реализует» себя в музыкально-игровом акте.

Большое значение в формировании, становлении и развитии самостоятельности может играть составление индивидуального плана. Удачный подбор материала, несомненно, мотивирует большую самоотдачу ученика. Нередко тут возникает проблема – в какой мере следует учитывать желание играть ту или иную гамму, этюд, пьесу, концерт. Определенных, конкретных рецептов нет и не может быть, так как всякий раз задачу приходится решать по-новому. Но, несомненно, и то, что поощрение (конечно, в пределах допустимости) самостоятельности в этом случае пробуждает более живое отношение к занятиям музыкой; кроме того, оно положительно влияет на развитие индивидуальности.

Реализацию плана обучения следует органично сочетать с выполнением ближайших установочных моментов, непосредственно связанных с текущей работой: проверять то, что было сделано дома, работать в классе над исполнением отдельных фрагментов материала.

Работа над произведением в классе – это не только прослушивание его и высказывание замечаний по игре. Важно добиваться, чтобы ученик самостоятельно поискал нужную звучность, рациональную аппликатуру, стремился обогатить технические моменты глубоким образным содержанием. От урока к уроку целесообразно прививать умение при первом же исполнении этюда или пьесы в классе воплотить как можно больше из того, что сделано было дома. И если при этом видно, что ученик серьезно и вдумчиво выполнял задание, то даже при наличии серьезных недоделок его надо, прежде всего, похвалить, а уже потом перейти к преодолению ошибок; тем самым будут осуществлены мотивация и стимулирование дальнейшей самостоятельности в работе. Поэтому очень важно, чтобы педагог обращал самое серьезное внимание на организацию домашних занятий учащихся.

Развитие навыков самостоятельной работы протекает более успешно в тех случаях, когда ученик воспринимает, воспроизводит и понимает, какую художественную цель преследуют указания педагога. Важно систематически и разумно применять принцип восхождения от конкретного к абстрактному, позволяющий в частном раскрыть общие закономерности исполнительского процесса. Эти обобщения полезно подкреплять примерами, наглядно разъясняющими смысл. Обобщение лучше усваивается, если ученику на этой основе предлагать самостоятельно решать различные игровые задачи.

Умение читать ноты с листа – важный компонент формирования музыканта. Работу по его приобретению и совершенствованию следует увязывать с изучением двигательных отправлений, основ технологии, техники, норм, правил и разновидностей процесса игры на инструменте.

Опытные, профессионально и методически вооруженные педагоги прививают навыки чтения с листа с первых движений смычка и занимаются этим постоянно; подбор материала строится по принципу «от простого к сложному», «от единичного к общему», с учетом индивидуальности ученика, его технических возможностей и музыкально-эстетических устремлений. Основная цель при этом – как можно быстрее перейти от разрозненного «складывания» отдельных звуков к цельному, музыкально-смысловому их исполнению.

Обучая навыкам разбора и разучивания, необходимо, прежде всего, анализировать форму произведения, строение мелодии, аккомпанемента, тональный план, характер, особенности, сложные места, затем добиваться того,

чтобы ученик воспринимал нотный текст, а затем воспроизводил его сразу группами по два, три, четыре звука, в зависимости от того, как они укладываются в мотивы, фразы и т.п.; при этом полезно интенсифицировать работу – объяснять значение, доводить до сознания элементы разучивания, вносить смысл в него (в разучивание), постоянно поддерживать интерес к нему. Большую пользу здесь принесет стремление учителя мотивировать и стимулировать овладение навыками непрерывного чтения нот «подключением» к этому процессу свой собственный опыт, опыт других, в том числе, известных мастеров своего дела; не последнюю роль в этом случае может сыграть глубокое знание «прикладных» элементов таких наук, как физиология и психология.

Хорошо известно, что, обучая игре на музыкальном инструменте, надо обязательно учитывать склад нервной системы учащегося, его возрастные, психологические особенности.

Ученик старших классов должен знать, что такое «ориентировочный» рефлекс, что происходит в момент его «включенности»; он должен знать, что внимание вниманию рознь: оно бывает произвольным и произвольным, и т. п. При этом педагог должен уметь облекать трудные терминологические и понятийные построения в простую и ясную для ученика форму. Скажем, при чтке с листа можно постепенно, осторожно вводить в разговор и расшифровывать слова-понятия о нервных клетках, о физиологической основе разрушения тех или иных навыков при длительном отсутствии упражнения, тренировки и т. п. [3].

Так, с помощью практики и науки можно добиться преодоления инертности и скачкообразности мышления, воспитать длительную концентрацию внимания, плавную непрерывность мыслительного процесса, протекающего чуть раньше движений рук, обеспечивая, тем самым, единство и цельность игры.

Этот «стратегический» прием способствует достижению двойного качественного результата: начиная с простых, несложных заданий на разбор нотного текста группами, затем – на непрерывное чтение (после того, как учащийся заметно подвинулся в умении быстро и осмысленно разучивать), учитель в то же время развивает школьника музыкально. Последнее может проявиться, например, в растущей способности слышать исполняемую музыку во всем ее разнообразии, координировать сочетание составляющих ее элементов, что открывает путь к технической и художественной выразительности.

Изучение музыкального произведения продолжает оставаться во многом неосвоенной стороной обучения игре на инструменте, несмотря на наличие литературы по этому вопросу.

Работу над музыкальным произведением лучше начинать не с прочтения нотного текста или определения исполнительских трудностей, а с изучения соответствующей эпохи, жизни, взглядов и творчества композитора. Опыт показывает, что грамотный, «многоплановый» подход к разбору сочинения, стимулирование поиска и нахождения верных и интересных путей к преодолению трудностей самим учеником, положительно влияет на освоение музыки, на глубину ее интерпретации. Детально должно быть продумано изучение нотного текста, одного из ведущих элементов усвоения произведения. Знакомство с текстом лучше начинать не на инструменте, а раньше: вначале он «пропускается» через сознание: «обмозговывается», потом воспринимается (по возможности), внутренним слухом; следующий этап – пропевание голосом; это мобилизует ученика и, кроме того, развивает творческое воображение и внутрислуховые способности.

Первым условием, которое должен ставить педагог в момент, когда начинается работа над текстом на инструменте, – это игра в медленном темпе. Дело в том, что большинство учащихся, не умея правильно осваивать текст, заучивают плохую аппликатуру, допускают смысловые, ритмические, интонационные, штриховые и тому подобные ошибки. Однако в медленном темпе работа должна вестись внимательно и осмысленно. Педагог должен уметь не только верно направить ученика, но и ясно, убедительно раскрыть особенности стиля, формы, эмоционально-образную сферу. Попутно целесообразно учить разумно организовать свой труд – от прочтения нотного текста в медленном темпе до создания цельного - по возможности - художественного музыкального произведения. На начальном этапе полезно предложить определить характер и роль метра, ритма, продумать какие-то моменты, связанные с аппликатурой, выявить какие-то особенности тембровой линии, динамики, штрихов и так далее. Все это надо делать так, чтобы у ученика рождались и развивались творческая заинтересованность и исполнительская фантазия [4].

Очередным этапом углубления знакомства с произведением является выделение трудных в техническом отношении эпизодов, фраз, периодов и ра-

бота над ними. При этом происходить должно не простое механическое заучивание тех или иных звуковых образований, пассажей, двойных нот. Трудные места лучше всего предварительно «окружить» специальными, определенным образом нацеленными на их преодоление, упражнениями и этюдами. При этом, конечно, педагог должен уметь «разглядеть» причинно-следственные связи процесса работы над произведением; он должен уметь «подталкивать» ученика к находке: не только «тактического», но и стратегического плана. Только так можно воспитать музыканта.

Педагог много добьется, если будет вести ученика так, чтобы исполнение его раз от раза становилось все более выразительным, свободным, непринужденным; чтобы юный музыкант, не боясь технических «ям», мог сосредоточить свое внимание на художественной стороне исполнения. Представления о характере игры той или иной вещи возникает по мере ознакомления с мелодическим развитием структурно-ритмических, динамических и других элементов музыки. При этом постоянно надо вести работу по проявлению инициативы со стороны ученика. Ему можно предложить, например, сыграть пьесу так, как на данный момент он сам ее понимает и чувствует, после чего это обсуждается и оценивается. Через какое-то время – снова контрольное исполнение. И так до момента, когда в результате многих сравнений, сопоставлений, обсуждений возникает нужный вариант трактовки. Чередование технических и музыкально-смысловых задач в сочетании с «двусторонним» творческим поиском – таковой должна быть схема изучения и освоения художественного материала в классе по специальности.

Произведение не может считаться подготовленным до конца, если оно не было публично исполнено. Между тем, хорошо известно, что представляет собой этот акт. Вот почему следует много внимания уделять развитию навыков игры учащегося на эстраде. Процесс этот, длительный и сложный, начинается почти одновременно с извлечением первых звуков на инструменте. И такое совершенно закономерно. С понятием «концертное выступление» неразрывно связана сама сущность исполнительского искусства, его «квинтэссенция».

Сообщая особым способом человеческие состояния, переживания мысли, обладая огромной потенциальной силой воздействия, музыкально-концертное исполнительство в то же самое время весьма уязвимо, - оно всегда «живое», сиюминутное, и поэтому подвержено влиянию многих факторов, в том числе

нежелательных. Художник, например, или ваятель, знакомя с результатом своего труда, в этот момент творчески пассивен: на данном этапе, он не в состоянии что-либо изменить в своем творении. Иное дело – музыкант-исполнитель: самые различные моменты, в частности те, что связаны с его эмоциональным, психологическим состоянием, могут либо мешать, либо, наоборот, способствовать приближению акта выступления к подлинному совершенству.

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Assiya Makanova,
*Nazarbayev Intellectual School,
Russian Language and Literature Teacher,*
Botagoz Tukay,
*Nazarbayev Intellectual School,
Kazakh Language and Literature Teacher*

***Development of argumentative writing skills
as an important element in the formation
of students' functional literacy***

*Маканова Асия, Назарбаев Интеллектуальная школа,
учитель русского языка и литературы,
Тукай Ботагоз, Назарбаев Интеллектуальная школа,
учитель казахского языка и литературы*

***Развитие навыка аргументированного письма
как один из важных элементов в формировании
функциональной грамотности учащихся***

В рамках обновления школьного образования в Республике Казахстан началась трансляция опыта Назарбаев Интеллектуальных школ, обучение в которых ведется по Интегрированной образовательной программе. Интегрированная образовательная программа по языковым предметам способствует формированию таких видов речевой деятельности, как говорение, слушание, чтение, письмо. Основной задачей предметов «Русский язык», «Казахский язык» является формирование и развитие практического применения коммуникативных компетенций учащихся для подготовки к различным ситуациям общения с помощью соответствующих языковых средств, иными словами, формирование функциональной грамотности учащихся [1].

Учителям необходимо следовать принципу, согласно которому учащиеся должны «научиться учиться». Для этого необходимо использование различных

стратегий преподавания и обучения: выслушивание мнения каждого учащегося и признание важности использования уже имеющихся знаний; развитие у учащихся навыков критического мышления; организацию индивидуальной, групповой деятельности учащихся и работы всего класса и др. [1]. В целом, все эти стратегии преследуют одну важную цель – развитие коммуникативных навыков учащихся.

Для развития функциональной грамотности очень важен навык развернутого аргументированного ответа. Подбор примеров, аргументов осуществляется ежедневно. В этой статье рассмотрим некоторые задания.

Основная цель статьи – информировать о наиболее эффективных путях подготовки к аргументированному письму.

Развитие навыков чтения, слушания, говорения реализуется через подбор соответствующих возрастным особенностям и уровню владения языком текстов. Использование содержания текста поможет созданию конечного продукта – письменной работы.

Цель аргументированного письма – убеждение аудитории в принятии какого-либо решения, поддержка той или иной точки зрения.

Хорошей основой для составления аргументированного письменного ответа могут послужить устные и письменные сообщения учащихся, самостоятельный поиск и извлечение необходимой информации из различных источников, «говорящие стены», аудиовизуальные материалы.

В качестве примера предлагаем из опыта работы несколько заданий. В 9-м классе при изучении раздела «Планета Земля. Океаны» предложили учащимся поработать с текстом «Китобойный промысел».

Люди охотились на протяжении нескольких тысяч лет, однако в девятнадцатом веке это стало важным промыслом, так как усиленная индустриализация и урбанизация требовали масла для освещения жилищ, которое можно было получить из китового жира. Мясо и другие части китов также использовались, однако промышленляли на китов в основном из-за их жира. С развитием нефтяной промышленности в конце девятнадцатого века значимость китобойного промысла значительно снизилась, однако люди все еще продолжали охотиться на китов ради их мяса и других продуктов, а использование новых технологий облегчало охоту. Вымирание или уменьшение численности многих видов китов и

вместе с тем данные о разумности и социальной природе китов привели к призыву регулировать охоту на китов и созданию Международной Комиссии по Китобойному Промыслу. МККП ввела запрет на охоту на китов в 1982 г., который фактически вступил в силу с 1986 г., когда была произведена приблизительная оценка численности китов [2].

Задания к тексту:

Что это значит?

- китобойный промысел, индустриализация, урбанизация, вымирание, МККП.

Ответьте на вопросы по тексту

- Почему китобойный промысел был так важен?
- Почему был введен запрет на китобойный промысел?

Ваше мнение

- Важен ли сейчас китобойный промысел?
- Необходимо ли сохранять численность китов? Почему?
- Нужно ли отменить международный запрет на охоту на китов?

Разные мнения

Численность китов достаточно велика, поголовье отдельных видов достигает миллиона и выше, так что возобновление регулируемого китобойного промысла не скажется неблагоприятным образом на их численности.

Многие киты являются хищниками, они приносят значительный ущерб стаям рыб, от которых люди также зависят как от источника протеинов, а некоторые народы и как источника средств существования. Уменьшение численности китов необходимо и для того, чтобы предотвратить сокращение рыбных стай.

Мнение экологов. Если сегодня и нужно тратить деньги, то не на изучение китов, а на их спасение. Ведь осталось-то их всего сотня. И они действительно вымирают. Это связано напрямую с развитием нефтегазовых проектов у северо-восточного побережья Сахалина, куда киты приходят кормиться и выращивать детенышей. В этих краях их уже несколько лет ждут шум от сейсморазведочных работ, интенсивное судоходство и загрязненное буровыми отходами море.

Координатор морской программы Всемирного фонда дикой природы: Нужно срочно создавать китовый заказник. Только это может спасти китов (Новая газета, №12, февраль 2003 г.) [2].

Этот вид задания развивает, в первую очередь, устную речь, расширяет словарный запас, позволяет сформулировать ответы с опорой на содержание текста, выразить свое отношение к этой проблеме, используя различные мнения.

Еще одно из таких заданий - это составление развернутого письменного ответа на проблемный вопрос. В качестве примера предлагаем работу ученика 11 класса по теме «Современное общество: безработица в Европе и Казахстане». **Задание:** прочитайте тексты (текст №1 «Анализ состояния занятости и безработицы в Казахстане», текст №2 «Проблема безработицы в Евросоюзе») и напишите развернутый ответ на вопрос «В чем особенности рынка труда Казахстана и Европы? Смогут ли, на ваш взгляд, страны Евросоюза и Казахстан нормализовать ситуацию на рынке труда?» объемом не менее 140 слов, используя идеи и аргументы из обоих текстов.

Работа №1.

Рынок труда зависит от состояния экономики и от страны в целом. В чем же особенности рынка труда Казахстана и Европы?

Формирование рынка труда в Республике Казахстан напрямую связано с восстановлением экономики страны после финансового кризиса. В стране есть потребность в разработке программ на длительную перспективу, которые воздействуют на рост занятости. Анализ ситуации на рынке труда выявил снижение уровня безработицы на 14%. На данный момент, в период 2008-2015 г.г. уровень незанятых людей составляют 5,3%. Данная проблема актуальна для всего активного населения страны, но особенно значима для молодежи. Главной причиной молодежной безработицы является отсутствие или незначительность трудового опыта. С целью устранения вышесказанных проблем по инициативе президента были приняты множество проектов, таких как «Занятость – 2020» и т.д.

В Европе же ситуация немного иначе. Оценить развитие рынка труда Европы можно через безработицу, уровень которой стремительно растет. Самый низкий показатель в Германии и Австрии – 5%, самый высокий в Греции – 60%. В то же время главная проблема Европы – незанятость молодежи. Чехия – единственная страна, где безработным регулярно выплачивают пособия, но это никак не улучшает ситуацию в стране, а, наоборот, ведет к значительным расходам бюджета. Росту занятости в Европе могут содействовать ряд комплексных мер.

Как мы видим, безработица – «больное место» любой страны. Полное устранение данной проблемы пока что является не совсем возможным. По-моему, для улучшения ситуации на рынке труда в странах Евросоюза необходимо сократить или прекратить, по крайней мере, во время финансового кризиса, выплаты пособий безработным, так как размеры европейских пособий позволяют им жить, не работая. Проблему эту нужно решать на государственном или межгосударственном уровне. Безработным нужно предложить бесплатные курсы переподготовки и переквалификации кадров, чтобы обеспечить вакантные места, потому что, например, в некоторых странах Европы при огромном количестве безработных есть очень много вакантных мест.

В качестве второго примера предлагаем вашему вниманию эссе ученика, в котором поднимается проблема исчезновения сайгаков в ряде регионов Казахстана при изучении раздела «Биоразнообразие и исчезновение» [3].

Работа №2.

Сегодня в нашей стране остро стоит проблема исчезновения сайгаков. Предприимчивых охотников, желающих обогатиться за счет продажи мяса, шкуры и рогов сайгаков, становится с каждым днем все больше и больше (**вступление**).

Неужели столь беззащитные животные вот так просто исчезнут с лица Земли? (**проблемный вопрос**).

Где же эти грациозные животные, так украшающие наши бескрайние степные просторы? Что же происходит сегодня с этими антилопами, считающимися символом казахстанских степей? Почему же они продолжают умирать?

Конечно, есть люди, которых беспокоит эта проблема... Нет, не проблема, а настоящая экологическая катастрофа! В то же время немало и таких, кого не только не волнует вымирание сайгаков, а кто сам участвует в этом процессе их безжалостного уничтожения. И сегодня, к большому сожалению, мы не просто слышим об этом. Мы видим своими глазами массовую гибель этих прекрасных жителей степи (**мнение**).

Например, как пишет kaztrk.kz, на юге республики были пойманы пятеро браконьеров, в багажнике которых стражи порядка обнаружили застреленного сайгака (**аргумент**).

Звук выстрела охотничьего ружья, красные от крови просторы дикой степи, жалобные, полные страдания и укора голоса несчастных животных – все это,

хоть и наполняет сердца простого казахского народа, но этот же народ будто отвернулся и устремился в другую сторону (**личная оценка**).

Наш народ издревле считал сайгаков священным животным. Народ говорит, что убийца сайгака ждет страшная кара – быть ему несчастным. Кто знает, так ли это на самом деле, ясно одно – это умное и безобидное животное, украшение наших степей, легко приспосабливается к любой природной среде (**мнение**).

По подсчетам специалистов, численность сайгаков на территории Казахстана в 2003 г. сократилась на 20 тысяч. По подсчетам 2013 года насчитывалось 187 тысяч сайгаков, в 2014 их поголовье достигло 256 тысяч, что, несомненно, радует. А летом 2015 года в Казахстане вследствие массовой гибели сайгаков пало более 100 тысяч особей. Поэтому защита занесенных в Красную книгу животных является государственной задачей и долгом каждого из нас (**аргумент**).

Сайгаки – очень выносливые животные, они ровесники мамонтов, и то, что им удалось сохранить свое потомство до сегодняшних дней, очень важно для нас. Если бы не их способность выживания в разных условиях, они бы давно вымерли вслед за мамонтами (**оценка**).

Хочу отметить, что сайгаки – священные для казахов животные, это известно всем. Кроме того, они не выживают в неволе (в зоопарках их практически не встретить), это вольные животные.

Поэтому я считаю важным пересмотреть законы по защите этих животных, запретить добычу сайгаков, ужесточить наказание за охоту на них, необходимо информирование населения о проблемах численности сайгаков на территории нашей страны (и не только), о важности сохранения популяции степных кочевников. Если мы начнем сегодня и сейчас прилагать усилия к этому, есть надежда, что статус «на грани исчезновения» не будет относиться к этим животным, ставшими национальным брендом (**выводы, предложения**).

Естественно, что навык аргументированного письма сразу не формируется и что он требует длительной и систематической работы. Эти и многие другие виды заданий на уроках способствуют развитию функциональной грамотности, что является одним из важных навыков, необходимых как выпускнику при написании итоговой экзаменационной работы, так и на протяжении

всей жизни. Поиск новых путей, новых интересных стратегий, повышающих интерес учащихся к предмету и способствующих развитию жизненно необходимых навыков, - это постоянная важнейшая задача каждого педагога, ведь сегодня ценностями современного образования определено и обучение на протяжении всей жизни. Поэтому работа по развитию навыка аргументированного развернутого письма и других навыков нами будет продолжаться.

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Khokhlova Valentina,

State Engineer-Economic University

of Nizhny Novgorod,

Professor, Doctor of Sociology,

Malakhova Julia,

Food Technologies and Design Institute

of Nizhny Novgorod,

Candidate of Sociology,

Chief of the Humanitarian Disciplines Chair,

Stolz Margarita,

University of Bielefeld, Bachelor of Art,

Candidate of Social Philosophy

On certain phenomena in the sphere of education

Хохлова Валентина,

Нижегородский государственный инженерно-экономический

университет, профессор, доктор социологических наук,

Малахова Юлия,

Нижегородский институт пищевых технологий и дизайна,

заведующая кафедрой гуманитарных дисциплин,

кандидат социологических наук,

Штольц Маргарита,

университет Билефельд,

бакалавриат, социология, кандидат философских наук

О некоторых феноменах сферы образования

В условиях трансформируемых процессами глобализации и регионализации реалий меняются цели, задачи и функции образовательных услуг. Педагогическая наука и практика всегда опираются на максимы, формулируемые общественными структурами, они не могут развиваться без серьёзного анализа социальной динамики. Сложные социальные коллизии и стремительно меняющиеся

условия функционирования общества требуют постоянного и точного диагностирования происходящего. Такой диагноз неразрывно связывает социальную и образовательную теории. Уже для Эмиля Дюркгейма тесная связь между социальной системой и образованием была очевидна. Известные истории образовательные системы «были неразрывно связаны с определёнными социальными системами» [3, с. 42], а развёрнутая панорама образовательных принципов отражает точную «картину состояния общества» [4, S. 25].

Два значительных феномена постмодерна – глобализация и регионализация – оказывают серьёзное влияние на сферу образования. Вопрос экзистенции и выживания в современном мире затрагивает не только функциональные поля политики и экономики, он пророс корнями и в сферу образования, объединяя глобальное и локальное, региональное и национальное. В соответствии с этим, цели и задачи образования должны быть релевантны актуальным социальным переменам и сформулированы в жёстком контексте глобализации и регионализации. Процессы в пространстве как глобализации, так и регионализации, протекают в самых разных формах и разнообразных сферах. Речь не просто о переменных, а о кардинальных пертурбациях на макро-уровне в социальных и транснациональных структурах, а на микро-уровне – в жизни общества. Причём противопоставление дихотомии «глобально – регионально» не редуцирует всей сложности социальной и гуманитарной реальности в русле мирового мейнстрима, но подчёркивает полярность этих феноменов [5, S.13], позволяя понять амбивалентные или сходные тенденции глобального или регионального развития в ходе их анализа на микро- и макро-уровнях.

Структурализм и постструктурализм (например, в теории воспитания) следуют традициям критической теории, которая ищет лежащие за поверхностными явлениями противоречия и закономерности движения в историческом развитии общества, способствуя выявлению скрытых исторических взаимосвязей. Обратимся к конкретизации культурно-исторических моделей, определяющих специфические культурные стандарты: привычки в процессе приёма пищи, поведение в труде, политическая система, религиозные обычаи, правила воспитания, языковое поведение, чувственные восприятия и их вербальные дефиниции, завоевание другого пола, погребальные ритуалы, одежда, продукты питания. В представленном методе познания речь о феноменологическом анализе повседне-

ного мира, который описывает видимую объективность. Задача всех наук, опирающихся на структурализм, – поиск структур внутри структур, то есть структурный анализ культурных реалий. В соответствии с этим всегда видимы и доступны восприятию только малые объекты культурной специфики. Эти воспринимаемые знаки (перцепты) являются лишь символами концептов мышления и деятельности, основополагающих, но всё же невидимых. Здесь мы выходим на структурное различие между внешними и глубинными структурами и их педагогической релевантностью. Глубинные структуры путём специфических правил трансформации превращаются в видимые внешние общественные структуры. По сути, образовательные процессы есть процессы трансформации внешних и глубинных структур. Учение как интернализацию объективного социального окружения нужно трансформировать в «Поверхность когнитивных структур» и производить действия на основе обратного процесса.

Учитель, воспитатель своей структурированной деятельностью порождает внешние структуры – дидактические интерактивные ситуации, ход занятия и т. д. Учащийся же – субъект учения – реализует взаимный трансформационный процесс: он преобразует воспринимаемую из окружающего мира внешнюю структуру общественной, культурной и биологической действительности на основе свойственных ему правил учения, трансформационных парадигм в глубинной структуре своего сознания. Здесь следует напомнить об ответственности лиц, функционирующих в педагогике, за применение норм и правил общественного воспитания, за правильное понимание глубинных причин и значений внешних структур. Нужно предельно внимательно относиться к осуществлению рефлексии образовательной деятельности. Требование и задача структуралистского метода определяются действиями и тенденциями окружающего мира, их смысловыми связями, которые невозможно ни расшифровать сознанием, ни понять динамику скрытых структур, определяющих нашу повседневную деятельность. Наше знание в отношении его генезиса и функций не транспарентно, оно систематически искажается. Иными словами, собственные явные культурные стандарты и модели поведения не открываются нам в своих глубинных значениях. Именно процесс осознания этих значений необходим для педагогики в глобальной современности.

На основе оценки огромного статистического материала по проблемам доходности, школьного образования, профессиональной квалификации, социального происхождения и т. д. конкретизируется позиция в социальном пространстве. Гомологически она постоянно меняется с пространством жизненных стилей: предпочитаемые продукты питания, музыка, автомобили, жилищные условия, виды спорта и др., представляющие социальное пространство и воплощающие объединительный генерирующий принцип практики. В этой практике три аспекта неразрывно переплетены друг с другом: схемы восприятия (социального мира), схемы мышления (к примеру, шаблоны классификации, по которым интерпретируется окружающий мир: этические нормы, эстетические вкусы) и схемы деятельности. В привычках объединяются когнитивные, оценочные и моторные схемы в один систематически организованный принцип генерации.

На этой основе сформулируем понятие культуры, отстранённо от национальных или расовых категорий. Культура есть «система ориентации, управляющая нашим восприятием, оценкой и деятельностью, репертуар средств коммуникации и репрезентации, с помощью которого мы понимаем друг друга, представляемся, генерируем идеи» [1, с. 28]. Мысль можно продолжить: это система ориентации, составленная из специфичных символов, действующая в соответствующих обществах и оказывающая влияние на восприятие, мышление, оценку и деятельность всех членов. Все типы восприятия, мышления, оценки и деятельности внутри одной специфической культурной системы ориентации можно считать культурными стандартами, понимаемыми членами одной культуры как нормальные, типичные, само собой разумеющиеся, обязательные. В этом случае культуру есть не завершённая застывшая картина, но процесс перманентных определений отношений. Различные точки зрения, способы мышления и деятельности не следует больше трактовать как заложенные в каком-либо биологическом или – что ничуть не лучше – культурном существе – субъекте – признаки, которые обычно называют различиями, то есть определённые, часто считающиеся врождёнными особенности формирования точек зрения, отношения и поведения – «естественное отличие». В реальности же это не более чем разница, дистанция, отличительный признак, короче, реляционная отличительная черта, которая существует только относительно иных признаков, в сравнении с ними [2, с. 18]. Из этого описания социальных признаков пластично вырисовывается модель социального пространства. Внутри этого пространства позиционирование

происходит в различных обществах в соответствии со специфическими критериями различия, которые Бурдьё называет сортами капитала. Он причисляет сюда экономический (материальные товары), культурный (образование) и социальный (отношения) капитал. Перехлёсты неизбежны. Деятельность и мышление зависят от имеющихся в распоряжении экономических, культурных и социальных ресурсов капитала. Привычно инкорпорированные структуры становятся «второй натурой». Однако в противоположность структуралистской позиции социальный субъект здесь воспринимается как слепой носитель объективных структур. Привычка определяет здесь только рамки и возводит границы возможных форм практики, которые размещены в соответствии со спецификой общества, группы, класса. Внутри этих границ невозможно предвидеть практические процессы. Индивидуальность – в использовании субъектом специфического игрового пространства, которое возникает в результате распределения ресурсов и возможностей. Если считать привычкой интернализованные (внутренние) формы практики, то это пространство созидания, сумма объективных структур, социальное поле. Они находятся в неразрывном диалектическом единстве. В этом случае критерии дифференциации модели социального пространства открывают возможность увидеть картину плюралистического общества, не фиксированного на этнических или национальных признаках. Различные менталитеты воспринимаются как инкорпорированные структуры привычек, не увязанные с национальной принадлежностью, но порождающие внутри общества на основе неравно распределённых ресурсов различные культуры – с разными эстетическими вкусами, этическими представлениями и т. д. Эта мысль для педагогической науки очень важна. Так, доходы и образование тесно связаны, и это говорит против уравнивания шансов, что теоретически должна обеспечивать образовательная система. А она с помощью целого ряда процессов отбирает обладателей унаследованного культурного капитала от не имеющих такового. П. Бурдьё подразделяет сферу образования на три формы: инкорпорированное состояние (усвоенное знание), объективированное состояние (возможность располагать предметами образования – учебниками и т. д.) и институциализированное состояние (дипломы об образовании, звания и т. д.). Со школьным образованием суммируются и освоенные интеллектуальные ресурсы. Наряду с экономическим и культурным капиталом он называет символический и социальный капитал (им при-

сущ перехлёст). Символический капитал понимаем как предрасположенное качество. Допущение гендерного равенства мало возможно, так что различное этническое происхождение и другие представимые внешние факторы никак не могут способствовать сегрегации (компенсация через другие сорта капитала этого, разумеется, не исключает). Социальный капитал, например, включение в социальные сети, семья (богатые родители, внешние контакты, отношения), представляет ещё один критерий различий. Социальный капитал для юношества могут представлять собственные контакты, например, в группах сверстников. Модели привычек и социального пространства доказывают очевидность того, что социальное и экономическое неравенство внутри групп населения структурно обусловлено, шансы обустройства жизни связаны с образованием и происхождением, с социальным статусом семьи и репродуцируются внутри социальных полей. Возможность располагать экономическим и образовательным капиталами определяет место в общественном пространстве.

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Valery Panachev,

Perm National Research Polytechnic University,

Doctor of the Sociological Sciences, Professor

Students healthy way of life: sociological study experience

Валерий Паначев,

Пермский национальный исследовательский

политехнический университет, доктор социологических наук, профессор

Здоровый образ жизни студентов: опыт социологического исследования

Постановка научной проблемы и ее значение. Качественная профессиональная подготовка студентов в университете невозможна без их активной учебно-трудовой, познавательной деятельности. Экономические и социальные причины, не позволяющие увеличить срок обучения, заставляют интенсифицировать его, что требует от студентов мобилизации воли, психофизических, духовных и физических сил. Надо научить студентов здоровому образу жизни, для которого характерны единство и целесообразность процессов самоорганизации и самодисциплины, саморегуляции и саморазвития, направленных на полноценную реализацию своих сущностных сил, дарований и способностей.

Различные подходы к пониманию феномена «здорового образа жизни» позволяют сделать вывод о том, что он объединяет все, что способствует выполнению человеком профессиональных, общественных и бытовых функций в оптимальных для здоровья условиях и выражает ориентированность деятельности личности в направлении формирования, сохранения и укрепления как индивидуального, так и общественного здоровья. Мы провели социологическое исследование на тему «Здоровый образ жизни студентов» (ЗОЖ), которое показало отношение молодежи к себе, к своему образу жизни и здоровью в целом.

Анализ исследований проблемы. В последнее время активизировалось внимание к ЗОЖ студентов, что отражает озабоченность государства и общества здоровьем специалистов, выпускаемых высшей школой, ростом заболеваемости в процессе профессиональной подготовки, снижением дееспособности в трудовой сфере. Именно поэтому необходимо рассматривать здоровье и ЗОЖ как одну из важных образовательных ценностей общества и личности студента [1].

Цель и задачи статьи. **Цель** - исследование здоровья студента и образовательной среды вуза. Обучение в высшей школе – сложный и достаточно длительный процесс, имеющий ряд характерных особенностей и предъявляющий высокие требования к пластичности психики и физиологических функций молодых людей. При поступлении в высшее учебное заведение у вчерашних школьников происходит нарушение жизненного стереотипа. Начальный период обучения играет существенную роль в развитии адаптационно-компенсаторных механизмов. От него во многом зависит, будет студент здоровым или больным. **Задачи** - изучение неврологического статуса и состояния сердечно-сосудистой системы. Для этого 2142 студента первого курса мы разделили на четыре группы: Практически здоровые студенты – 1509 чел. (70%). Студенты с повышенным артериальным давлением – 254 чел. (11%). Студенты с явлениями гипотонии – 90 чел. (4%). Студенты с функциональными неврологическими нарушениями – 289 чел. (13%). Во вторую, третью и четвертую группы вошло в общей сложности 29% студентов – первокурсников, имеющих отклонения в состоянии здоровья. Анализ амбулаторных карт показал, что у подавляющего большинства студентов, ушедших в академический отпуск (83%), заболевания начинаются на первом – втором курсах. Причинами заболевания являются нервное напряжение и перегрузка в процессе занятий [1, с. 52]. Диагностика уровня здоровья студентов, проведенная в университете, показала, что только у 7% обследованных студентов состояние опорно-двигательной системы было хорошим, у 28% выявлены функциональные нарушения и у 64% – пред- и патологические. Состояние пищеварительной системы только у 7% обследованных было нормальным, у 85% выявлены функциональные нарушения, у 6% – пред- и патологические. В целом обследование показало наличие субъективных жалоб и объективно подтвержденных изменений в одной или нескольких системах и органах у подавляющего большинства обследованных. Ни одному обследованному студенту нельзя было дать заключение «абсолютно здоров», и лишь 15% могли характеризоваться как

«условно здоровые» (то есть имели только функциональные нарушения) [2, с. 16]. При исследовании психической составляющей здоровья студентов обращает на себя внимание астенизация и большое число функциональных нервно-психических расстройств, стрессоустойчивая психика выявлена в среднем всего у 21% из 312 обследованных студентов гуманитариев и естественников. Увеличение числа функциональных расстройств нервной системы у студентов – так называемых пограничных нервно-психических состояний – отмечалось еще в 80-е годы. Нарушения в нервно-психической сфере у студентов возрастают от 1 к 3 курсу, причем в технических вузах чаще болеют юноши. Нервно-психические расстройства развиваются на фоне синдрома социальной дезадаптации, интеллектуально-эмоциональных перегрузок в период сессий, межличностных конфликтов [3, с. 23].

При сопоставлении данных, полученных учеными в различных регионах страны, наблюдается однотипная картина ухудшения здоровья студентов в период их обучения в вузе, в зависимости от экологической обстановки и климато-географических особенностей [2; 3; 4; 5; 6]. Отношение к здоровью обусловлено объективными обстоятельствами, в том числе воспитанием и обучением. Оно конкретно проявляется в действиях и поступках, переживаниях и вербально реализуемых мнениях и суждениях людей относительно факторов, влияющих на их психическое и физическое благополучие. Эмпирическим критерием отношения к здоровью в поведении может служить степень соответствия действий и поступков человека требованиям здорового образа жизни, а также нормативным требованиям медицины, санитарии и гигиены. В высказываемых мнениях и суждениях выступает уровень осведомленности и компетентности индивида. Отношение к здоровью включает в себя и самооценку человеком своего физического и психического состояния, которая является своего рода индикатором и регулятором его поведения.

Анализ литературных источников [1-9] показал, что здоровье в иерархии ценностей занимает у студентов ведущие позиции. Так, по разным данным (выведены средние показатели), здоровье как общечеловеческая ценность получило высокую оценку у 75% ($\pm 5,0$) юношей и девушек (у девушек показатель выше). При этом здоровье соотносится с другими общечеловеческими ценностями: удачной семейной жизнью, всесторонним и гармоничным развитием, интеллектуальными способностями и др. В тоже время, отмечается, что ценность

здоровья как средства достижения других целей (достижение материального благополучия, карьерный рост и др.) оказалась для студентов важнее, чем ценность здоровья как средства прожить наиболее продолжительную и полноценную на всех этапах жизнь.

Изложение основного материала и обоснование полученных результатов исследования. По нашим данным (опрошено 380 студентов различных годов обучения), основная масса студентов несерьезно относится к своему здоровью. Так, на вопрос: «Следите ли вы за своим состоянием своего здоровья?», были получены следующие ответы: слежу регулярно – 13% юноши, 23% девушки; слежу от случая к случаю – 37% юноши, 39% девушки; начинаю следить только тогда, когда почувствую недомогание – 50% юноши, 38% девушки. Студенты затрудняются с ответами, каков у них пульс в покое, каково артериальное давление. Подобное отношение студентов к собственному здоровью отмечается и в других исследованиях [3; 10]. Наши многочисленные исследования позволили прийти к знаковому теоретико-практическому выводу о том, что здоровье человека зависит на 55% от образа жизни, на 25% от влияния окружающей среды, на 10% от наследственности и на 10% – от медицины. Здоровый образ жизни, как и здоровье в ценностных ориентирах студентов имеют высокую оценку, а реальное поведение противоречит высказанным мнениям и суждениям о ценности ЗОЖ. Так на вопрос, ведете ли вы здоровый образ жизни, были получены следующие ответы: в основном да – 24%, скорее да, чем нет – 18%, скорее нет, чем да – 38%, затруднились ответить – 18%. Анализ полученных данных показывает, что свыше 50% студентов не соблюдают основные элементы режима жизнедеятельности, у них не сформирована установка на рациональное планирование своего времени. Они нарушают гигиенические нормы умственного труда, быта, питания, недооценивают положительное влияние на учебную деятельность таких важных факторов, как режим сна, питания, пребывания на свежем воздухе и выполнение физических упражнений. Известно, что при современных требованиях к студенту, успешная деятельность требует значительного умственного напряжения, но результаты опроса говорят, что систематически самостоятельной учебной работой занимаются 42% студентов, остальные занимаются периодически. В нашем исследовании выявлено, что в определенное время выполняют учебные задания – 35% студентов, остальные готовятся к занятиям не в определенное время.

Значительная часть – 55% опрошенных, приступают к занятиям с 20 до 22 часов, а некоторые и позже, что естественно снижает качество подготовки. Для восстановления умственной работоспособности на достаточно высоком уровне и сохранения здоровья необходимо гигиенически правильно чередовать занятия с отдыхом. Лучшим отдыхом является сон в определенное время не менее 7 – 8 часов, но 40% студентов не соблюдают режим сна, многие из них испытывают его дефицит, так как ложатся после 24 часов, а некоторые и позже, что отрицательно влияет на умственную работоспособность. Установлено, что наиболее благоприятный двигательный режим 6–8 часов в неделю. Данного двигательного режима придерживается всего лишь 26% опрошенных, основная часть студентов – 75% физическими упражнениями занимается от 2 до 4 часов, включая занятия по физической культуре в вузе. Регулярно посещают такие занятия – 43% и нерегулярно – 56% опрошенных, самостоятельно физическими упражнениями занимается незначительная часть студентов.

Выводы и перспективы дальнейшего исследования. Таким образом, подводя итог проведённого исследования по формированию ЗОЖ студентов как условия укрепления и сохранения их здоровья, необходимо сделать вывод о том, что эффективность решения данной проблемы заключается как в активизации деятельности кафедр физической культуры по использованию инновационных моделей и подходов в процессе физического воспитания студентов, так и в целенаправленном использовании ресурсов образовательного пространства вуза. В нашем университете в этом учебном году созданы для дополнительных занятий 68 групп здоровья. Однако, как показало исследование, молодое поколение не всегда соблюдает эти простые правила. Необходимо активизировать работу кафедр физической культуры в этом направлении и постоянно проводить научные исследования по данной проблематике.

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Timofeycheva Vera Anatolyevna,
Moscow State University of Ways of Messages (MIIT),
Humanitarian Institute,
Associate Professor "Service and Tourism",
Professor RAE, Master of Pedagogics,
Candidate of Psychological Sciences

Resistance to stress and ability to self-control at athletes

Аннотация: Материалы, представленные в данной статье, являются начальным этапом нашего исследования изучения динамики стресса у спортсменов по рукопашному бою. В исследовании мы показываем, что основная часть спортсменов по рукопашному бою обладает низким уровнем стрессоустойчивости и саморегуляции эмоционального состояния в стрессовой ситуации. Данный факт подготовил нас к необходимости осуществления адресной психологической помощи спортсменам по рукопашному бою, которая должна быть направлена, согласно полученным результатам, на снижение уязвимости к стрессу и развитие у них способности к саморегуляции в стрессовой ситуации.

Ключевые слова: стресс, профессиональный стресс, организационный стресс, стрессоустойчивость, саморегуляция, адаптированность, стрессовая ситуация, спортсмены.

Проблема стресса, стрессоустойчивости постепенно и настойчиво выступает объектом внимания не только психологов, педагогов-психологов, психиатров, клинических психологов, но и спортивных психологов, что стимулируется последними изменениями в экономике и обществе в целом. Знание психологических факторов, которые приводят к стрессу, и овладение способами совладания со стрессом помогут предотвратить многие стрессовые ситуации и повысить эффективность спортсмена, а также достичь поставленных целей спортсмену с минимальными психологическими и физиологическими потерями. Изучение дина-

мики стресса у спортсменов позволит эффективно выстроить технологию психологической помощи последним и окажет помощь последним овладеть техниками психологической саморегуляции в стрессовой ситуации.

В основе нашей работы заложены идеи трудов известных психологов, занимающихся изучением проблемы стресса и проблемами регуляции эмоциональных состояний - Л.М. Аболин, А. Валлон, А.О. Прохорова, Е.С. Петрова, Г.А. Вартанян, Т.П. Гаврилова, В.А. Тимофеева, Г.С. Беляев, В.С. Лобзин, А.Г. Панова, А.Л. Гройсман, Д.Г. Бадмаева, А.В. Алексеев, Е.К. Агеенкова, И.Г. Шульц, О.Е. Корой и др.; работы, посвященные изучению стресса: А.Б. Леоновой, Н.Е. Водопьяновой, Н.Г. Сушко, В.Л. Марищук, Ф.П. Космолинского, А.А. Лобанова и др.

Цель исследования - исследовать динамику стресса у спортсменов по рукопашному бою. **Задачи** экспериментального исследования по изучению динамики стресса у спортсменов по рукопашному бою на констатирующем этапе: выявить степень выраженности профессионального и организационного стресса у спортсменов по рукопашному бою, стрессоустойчивость и способность к самоконтролю в стрессовой ситуации, по полученным результатам определить дальнейший ход исследования. **Объектом** исследования является стресс как психологическое состояние. **Предметом** исследования: динамика стресса у спортсменов по рукопашному бою.

В исследовании приняли участие 40 мужчин – спортсменов-профессионалов по рукопашному бою с опытом в спортивной профессиональной деятельности до 10 лет. Возраст испытуемых от 20 до 30 лет.

В исследовании были использованы следующие методы и методики:

1. Методы экспериментального исследования (методика «Шкала профессионального стресса» Д. Фонтаны, Шкала стресса Маклина, тест самооценки стрессоустойчивости С. Коухена и Г. Виллиансона, Шкала психологического стресса PSM-25, методика «Диагностика состояния стресса» К. Шрайнер);
2. Методы статистической обработки данных t-критерий Стьюдента программного обеспечения SPSS Statistika.

На констатирующем этапе эксперимента была проведена диагностика стресса, стрессоустойчивости и способности к самоконтролю в стрессовой ситуации.

Проанализирована выраженность профессионального стресса у спортсменов по рукопашному бою, изучаемого с помощью методики Д. Фонтаны. Полученные результаты показали, что 37,5% спортсменов по рукопашному бою, принявших участие в исследовании (15 человек), имеют высокий уровень профессионального стресса, а 8,3% (3 человека) – очень высокий. Только у 16,7% (7 человек) признаки профессионального стресса отсутствуют, а у 37,5% (15 человек) выявлен умеренный его уровень.

Таким образом, профессиональный стресс является достаточно распространенным явлением у спортсменов по рукопашному бою, причем больше, чем для трети из них, он представляет безусловную проблему, а для трех спортсменов по рукопашному бою он является главной проблемой, требующей немедленных действий для его коррекции.

Для выявления степени распространенности организационного стресса использовали методику Маклина. Согласно полученным результатам, у 29,2% спортсменов по рукопашному бою (12 человек) выявлена высокая восприимчивость к организационному стрессу, 33,3% респондентов имеют среднюю стрессоустойчивость, а 37,5% (15 человек) обладают низкой уязвимостью к организационным стрессам.

Полученные результаты, как и данные диагностики профессионального стресса, являются неблагоприятными, поскольку показывают, что почти третья часть спортсменов по рукопашному бою отличаются большой уязвимостью к организационным стрессам, что связано с их недостаточным умением общаться, принимать других людей, адекватно оценивать ситуацию без ущерба для своего здоровья и работоспособности, негибкостью поведения и пассивностью по отношению к активным формам отдыха и восстановления жизненных сил.

Стрессоустойчивость спортсменов по рукопашному бою оценивалась с помощью теста С. Коухена и Г. Виллиансона. Полученные результаты показали, что только 8,3% (3 человека) спортсменов по рукопашному бою имеют очень высокий уровень стрессоустойчивости (отличная устойчивость к стрессам), 16,7% (7 человек) – высокий (хорошая стрессоустойчивость). У 37,5% спортсменов по рукопашному бою (15 человек) обнаружена низкая степень стрессоустойчивости (плохая устойчивость к стрессу), а у 8,3% (3 человека) – очень низкая (очень плохая стрессоустойчивость). 29,2% (12 человек) спортсменов по рукопашному бою,

принявших участие в исследовании, отличаются удовлетворительной устойчивостью к стрессам.

Таким образом, полученные результаты указывают на то, что почти половина спортсменов по рукопашному бою обладают низкой способностью переносить значительные интеллектуальные, волевые и эмоциональные нагрузки (перегрузки), обусловленные особенностями спортивной профессиональной деятельности, без особых вредных последствий для деятельности, окружающих и своего здоровья, что обуславливает необходимость оказания им психологической помощи в преодолении стресса, которая должна быть направлена на повышение стрессоустойчивости.

Результаты анализа распространенности переживания психологического стресса у спортсменов по рукопашному бою показали, что 33,3% (13 человек) спортсменов по рукопашному бою отличаются хорошей адаптированностью к рабочим нагрузкам, а у 16,7% (7 человек) выявлен высокий уровень стресса, свидетельствующий о состоянии дезадаптации и психического дискомфорта. Половина спортсменов по рукопашному бою 50% (20 человек) имеют средний уровень стресса.

Полученные данные указывают на необходимость оказания психологической помощи, направленной на снижение психической напряженности, связанной с профессиональной деятельностью спортсменов по рукопашному бою. Несмотря на то, что высокий уровень психологического стресса выявлен у достаточно небольшого количества спортсменов по рукопашному бою, половина из них переживает состояние стресса, хотя и на среднем уровне. Данное состояние, при отсутствии необходимых профилактических и коррекционных мер, может усугубиться.

Данные анализа способности саморегуляции в стрессовой ситуации у спортсменов по рукопашному бою показали, что низкий уровень состояния стресса (или высокий уровень способности к саморегуляции) имеют только 20,8% сотрудников (8 человек), а у 50% респондентов (20 человек) обнаружен высокий уровень состояния стресса (низкая способность самоконтроля в стрессовой ситуации). Остальные испытуемые 29,2% (12 человек) отличаются средним уровнем состояния стресса.

И так, результаты исследования показали, что подавляющее большинство спортсменов по рукопашному бою обладают недостаточной или низкой способностью к саморегуляции эмоционального состояния в ситуации стресса, что указывает на необходимость формирования механизмов саморегуляции.

Таким образом, результаты констатирующего эксперимента показали, что профессиональный и организационный стресс является распространенным явлением у спортсменов по рукопашному бою, причем подавляющее большинство спортсменов по рукопашному бою обладают недостаточным или низким уровнем стрессоустойчивости и саморегуляции эмоционального состояния в стрессовой ситуации. Это обуславливает необходимость осуществления им психологической помощи, которая должна быть направлена, согласно полученным результатам, на снижение уязвимости к стрессу и развитие способности к саморегуляции в стрессовой ситуации.

Второй задачей констатирующего этапа эксперимента было формирование экспериментальной и контрольной групп с целью оценки эффективности психологической помощи. Согласно требованиям, предъявляемым к проведению формирующего эксперимента, экспериментальная и контрольная группы не должны иметь значимых различий в изучаемых переменных. Значимость различий проверялась нами путем вычисления Т-критерия Стьюдента для несвязных выборок. Согласно представленным результатам, экспериментальная и контрольная группы не имеют статистически значимых различий в уровне переживания профессионального, организационного и психологического стресса, стрессоустойчивости и способности к саморегуляции эмоционального состояния в ситуации стресса ($p > 0,05$ по всем сравниваемым переменным).

Полученные результаты нашего исследования на данном этапе позволили заложить основу для проведения дальнейшего исследования выявления динамики стресса у спортсменов по рукопашному бою.

Таким образом, результаты констатирующего эксперимента показали, что профессиональный и организационный стресс является распространенным явлением у спортсменов по рукопашному бою, причем подавляющее большинство спортсменов по рукопашному бою обладают недостаточным или низким уровнем стрессоустойчивости и саморегуляции эмоционального состояния в стрессовой ситуации. Это обуславливает необходимость осуществления им психологиче-

ской помощи, которая должна быть направлена, согласно полученным результатам, на снижение уязвимости к стрессу и развитие способности к саморегуляции в стрессовой ситуации.

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Chekalyuk V. V.,

Ph.D. (Candidate of Sciences,

Social Communications),

The Institute of Journalism,

Kyiv National Taras Shevchenko University,

The State Image Maker,

Ilianova Amaliia,

Ph.D. (Doctor of Philosophy in Psychology),

Practicing Psychologist, Author of Scientific Publications

The algorithm for generating the image of a leader in media

Annotation: In this research a range of ways of developing the image of the president in the modern information space is offered to influence the forming of the image of the country. Image of the state straightly depends from the image of the first person of the country, the leaders, and representatives of elite, representatives of culture, sportsmen, and first of all the president of himself. Elected by people, leader plays important part in political life of the country. This article is devoted to president image influence on state image formation.

Keywords: media, president, leader, image, audience.

Чекалюк Вероника Васильевна,

кандидат наук по социальным коммуникациям,

докторант Института журналистики

Киевского национального университета

имени Тараса Шевченка,

государственный имиджмейкер,

Ильянова Амалия Олеговна,

доктор философии в области психологии,

практикующий психолог, автор научных публикаций

Алгоритм творення позитивного іміджу лідера у ЗМІ

Анотація: У статті розглянуто вплив іміджу державного лідера на формування іміджу держави у ЗМІ. Імідж країни, репрезентований у медіа, залежить від існуючого іміджу перших осіб та лідерів, а також від представників еліти, насамперед від Президента. Автори пропонують власний алгоритм формування позитивного іміджу.

Ключові слова: медіа, президент, лідер, імідж, аудиторія.

Вступ. Імідж лідера та держави є взаємопов'язаними складовими єдиного іміджу, вони різні, але необхідні для повноцінного функціонування країни, що в свою чергу гарантує її міжнародний авторитет та неподільність кордонів. Майже у всіх країнах світу лідер сам формує свою команду і визначає основні пріоритети у внутрішній та зовнішній політиці держави. Авторами розглянуто вплив іміджу президента на формування іміджу держави. Імідж країни, репрезентований у ЗМІ, залежить від існуючого іміджу перших осіб та лідерів, а також від представників еліти, насамперед від Президента. Обраний народом, лідер відіграє провідну роль у політичному житті країни і формуванні її іміджу.

Правильно сформований державний імідж молодій країні – це інноваційний місток у майбутнє, справжній науковий прорив. ХХІ ст. дало нову хвилю науковців-іміджмейкерів і громадських діячів нової формації, без фаховості яких не буде працювати система держави. Запорука економічно-політичного успіху в руках іміджмейкерів, котрих у даному контексті можна назвати винахідниками, адже створення репутації, вплив і відповідність запитів аудиторії, побудова міждержавних ефективних багатовекторних комунікацій, дієвих проектів - це нова технологія, новий науково доведений інструмент досягнення мети. Державний імідж, віддзеркалений у ЗМІ – результат взаємодії носія іміджу та інформаційної аудиторії.

Актуальність. Питання винайдення дієвого алгоритму - тема масштабна й знаходиться у стані еволюції, наразі тривають дослідження: Як оцінювати імідж, за якими критеріями, адже те, що для одних невдача, для інших може бути успіхом? Позитивний імідж держави науково трактуємо як стабільний, аргументований економічними показниками, відсутність рецесії. Агресивний чи миролюбивий,

демократичний чи диктаторський імідж держави? За яких умов, за якою шкалою вимірів можемо оцінювати рейтинг державного іміджу. Як скорелювати популярність, зокрема України, у світовому інформаційному просторі для подальшого позитивного стабільного іміджу. Це питання залишається відкритим... Надшвидкий розвиток іміджелогії у світі і, зокрема в Україні, потребує перегляду звичних стереотипів. Новизна дослідження полягає в тому, що в статті вперше проаналізовано інструменти і методи впливу на аудиторію, формування іміджу в різних політичних ситуаціях. Досліджено досвід науковців-практиків, іміджмейкерів щодо створення і поширення революційних наукових технологій впровадження позитивного іміджевого забарвлення об'єкту (предмету іміджу) у масову свідомість.

Мета: дослідити аспекти формування позитивного іміджу лідера держави, його вплив на сприйняття держави у світі і всередині країни через призму подачі матеріалів у ЗМІ.

Завдання: визначити основні принципи діяльності вітчизняних ЗМІ і методи формування іміджу держави і її лідера, так як імідж держави, як результат інформаційного середовища, сформованого ЗМІ.

Вивченням даної тематики займаються провідні вітчизняні і закордонні вчені, іміджмейкери, зокрема: Г.Г. Почепцов, В.В. Різун, В.Ф. Іванов, А.Д. Гулієв, М.О. Поживанов, Д.В. Ольшанський, М.О. Тимошенко, Н.О. Качинська, В.І. Шкляр, Т.В. Іванова, В.М.Шепель, А.П. Ситников, Густав Водічка, Жак Сегела, Девид Герген, Ричард Верслин Майкл Портер, Лі Куан Ю, Роберт Сквайр, Джон Діадорфф, Тим Белл и Бернард Ингхем та ін. Питання іміджу державного лідера, й держави зокрема, на початку ХХІ ст. надзвичайно актуальне й не вирішене, не існує єдиного алгоритму створення іміджу, але є спільний висновок: імідж потребує уваги і новацій, психологічної стабільної основи, його треба створювати, формувати, зберігати за допомогою інструментів медіа і вдосконалювати систематично...

Досліджуючи тему іміджу, пропонуємо наступний алгоритм: імідж держави - це образ країни, зовнішній і внутрішній, сформований і зафіксований психологічно у масовій свідомості громадян, сформований під впливом діяльності лідерів держави та провідних підприємств, видатних персоналій, економічних, політичних та екологічних та ін. факторів. Позитивний імідж чи негативний – це залежить від психології та комунікативної взаємодії з медіа. Зазвичай, формування іміджу

відбувається як кризь призму політичних подій, що виникли спонтанно, так і внаслідок клопіткої роботи іміджмейкерів і органів ЗМІ. Вагому роль у формуванні іміджу держави і її лідера, як ззовні так і у середині країни, відіграють економічні і політичні прогнози та глобальні очікування. Робота над створенням іміджу потребує моніторингу ситуації, оцінки існуючого іміджу і відповідності до запитів аудиторії; а також розробки стратегічної програми впровадження; корекції і оперативного реагування на непрогнозовані, непередбачувані зміни у суспільно-політичному житті країни і її лідера. Прогнози політтехнологів, маркетологів, іміджмейкерів, політологів, психологів, їх реальні дії, розробка стратегії, відкритість для широкої аудиторії і взаємодія з медіа – гарантують підсилення державного іміджу і лідера, який відповідає сутності трансформації громадянського суспільства. Вдалий імідж, прийнятний для тиражування у ЗМІ, повинен бути оптимальним – задекларовані наміри команди політика мають відповідати реальній діяльності, вчинкам і політичним крокам Президента. Із сказаного випливає, що головною роль у сприйнятті державного іміджу відіграє її лідер – Президент (чи інша публічна особа з авторитетом масштабу країни).

Уява про лідера, його імідж і репутація напряму відображаються на ставленні до держави на світовій арені. Це підсвідома асоціація, тому що народ, більшість громадян країни, можуть не поділяти симпатії чи антипатії дипломатів, політиків, більше того іноді президент може бути лише формальним лідером, а асоціації з країною виникатимуть при згадці митця, спортсмена, політика, тобто народного лідера. Так, у пабі у Німеччині українському туристу, демонструючи свої знання про батьківщину відвідувача, бармен назве не ім'я президента України, а наприклад Кличка-боксера чи Шевченка-футболіста. Сприйняття чи несприйняття держави в цілому залежить від інформаційно-аналітичних медіапроявів. Наразі зазначені видозміни формулюють перед науковим товариством актуальні наукові проблеми, пов'язані з напрацюванням новітнього чи уточненням традиційного термінологічного апарату комунікативістики іміджелогії, реклами і медіазнавства. Новітні медіа, соцмережі та інші інформаційно-комунікаційні технології стимулюють революційні зміни у масовій комунікації, оперативність і правдивість передачі даних від першоджерела до світового розголосу, цим підсилюючи позитивний імідж або ж руйнують його. Дж. Морлі влучно зазначив: «У промові важливі три речі: хто говорить, як він говорить і те, що він говорить, має останнє значення» [1, с. 1].

Відкритість і публічність – найкращий інструмент формування і збереження позитивного політичного іміджу лідера і держави в цілому. Термін «імідж» має англійське походження, поняття трактують як цілеспрямовано спрямований і емоційно забарвлений образ, що склався у масовій свідомості і набув характеру стереотипу; як набір певних якостей, які люди асоціюють з певним індивідом. Політичний імідж виникає тільки тоді, коли він стає «публічним» і починає стосуватися різних сторін політичної практики.

Для апробації алгоритму зосередимо увагу на трьох групах складових іміджу політичного лідера. Персональні характеристики: фізичні, психофізичні особливості, характер, тип особистості, індивідуальний стиль прийняття рішень тощо. Соціальні характеристики – це, насамперед, належність до певної соціальної групи – партії, національності, професійної групи, соціальний статус. Символічні характеристики: лідери стають знаками певних ідеологій, можливого майбутнього, певного курсу дій. Так, зовнішність лідера – одна з небагатьох характеристик, яка набуває в телевізійну епоху великої ваги - манера поведінки і спілкування відіграють істотну роль при формуванні першого враження про конкретного політика, а відтак і держави, яку він представляє. Також науковець Акаймова А. зазначає, що чистота і виразність мовлення, прагнення бути переконливим, ораторські навички політика відіграють важливу роль у формуванні іміджу. Що стосується особливих характеристик, то тут найбільшого значення набувають інтелектуальні якості [2, с. 29 - 31].

Отже, ключову роль у сприйнятті державного іміджу відіграє її лідер – Президент. Кожен з президентів презентує певний тип керівника держави зі своїм іміджем, тиражованим у медіа. Імідж, віддзеркалений у ЗМІ, – це результат взаємодії носія іміджу та інформаційної аудиторії. Підсумовуючи, оприлюднені у дослідженні матеріали мають практичне значення, насамперед, для удосконалення державного іміджу України. Цінність одержаних нами результатів для розвитку напряму соціальних комунікацій України полягає у структурованому описі іміджетворюючих інструментів, завдяки яким ЗМІ утворює або руйнує репутацію країни. Отже, державний імідж потребує колосальної уваги не лише іміджмейкерів, а й політологів, економістів, фінансистів, юристів, дипломатів і піарників, науковців та інших висококваліфікованих менеджерів. І неформальних зв'язків, знайомств, важелів впливу на формування іміджу. Цілісність і непоєднуваність сприйняття державного іміджу для українців і для світової спільноти. Коректне

позиціонування держави у ЗМІ, підтверджуючи заявлені матеріали фактами і відповідними думками міжнародних експертів, що не викличе сумнівів у аудиторії, щодо правдивості запропонованого іміджу держави, не викличе сумнівів щодо позиціонування країни і результатом буде залучення інвестицій, розквіт економіки і розбудова.

Як зазначає науковець і громадський діяч Вячеслав Кредісов: «Ідеї іміджмейкера Чекалюк В.В. перегукуються з моїм баченням іміджу України. Моя мета, і це не високі слова, - щоб життя в Україні стало кращим, зокрема й через самореалізацію, а життєвий принцип: якщо не я, то хто? Саме так мислить В.В. Чекалюк, що й робить її працю не суто науковою, а й готовою для практичного застосування у державному управлінні. Якість подачі інформації у ЗМІ про Україну, суспільно-державні цінності як складова формули іміджу є головним аргументом для сприйняття громадою. Як аналітик наголошую: питання творення іміджу України, що поглиблено вивчають автори даної статті, є одним із найпріоритетніших і для політиків, і кожного громадянина» [3].

Сприйняття чи несприйняття держави в цілому залежить від інформаційно-аналітичних медіапроявів у вітчизняних і світових ЗМІ. Зазначені видозміни формулюють перед науковим товариством актуальні наукові проблеми, пов'язані з напрацюванням новітнього чи уточненням традиційного термінологічного апарату комунікативістики іміджелогії, реклами і медіазнавства. Internet, новітні медіа, соцмережі та інші інформаційно-комунікаційні технології стимулюють революційні зміни у масовій комунікації, оперативність і правдивість передачі даних від першоджерела до світового розголосу, цим підсилюючи позитивний імідж або ж руйнують його. Для лідера відкритість і публічність – найкращий інструмент формування і збереження позитивного іміджу самого лідера і держави в цілому.

Вивчаючи історію президентів США та європейських і пострадянських лідерів, вважаємо, що закономірностей у формуванні іміджу лідера держави немає. Що є ідеалом в одній країні – неприйнятне на іншому континенті. Так, у США – це добропорядний сім'янин з білозубою усмішкою, африканський вождь племені хизується скальпами і гаремом. У сучасному європейському світі роль лідера нівелюється. Так, греки домоглися зміни уряду, але покращення не настало, і їм тепер немає проти кого боротися, тож провину складають на Ангеліну Меркель.

У Росії терористи свій гнів спрямовують проти мирного населення. Паризькі бідняки свого часу взяли Бастилію як символ влади короля, уособлення проблем, і відбулася революція. Там і в наш час багато бідняків, які влаштовують погроми і вступають у сутички з поліцією, але це не призводить до революції. Теперішня ситуація не потребує лідера-героя. Потрібна харизматична особистість, здатна на монотонну щоденну роботу над собою, проблемами держави і творенням іміджу країни. Що менше амбіцій, то більше шансів, що краще працюватиме система, менше буде заворушень. Нині світом править не політик, а бізнес. Він не залежний, і йому немає потреби триматися за фальшивого лідера на бюрократичній посаді. З часом вибори стануть справді демократичними, бо сам по собі лідер вирішуватиме дуже мало. Психологічно невиправданими є силові методи, бо вони, як тиск, можуть дати лише короткострокові оманливі позитивні результати. Власне доля держави значною мірою залежить від кваліфікації іміджмейкера, який працює з лідером, його здатності мислити креативно, бути психологічно готовим до лідерства.

За Н. Вебстером, поняття «імідж» похідне від «свідомість», утвореного за допомогою мови зображення, опису; розумова концепція, підтримувана різними суспільними групами, що символізує основну позицію і орієнтацію щодо особи, об'єкту, расового типу, політичної філософії або національності [4, с. 1]. Г. Почепцов вважає, що «імідж – це звернене у зовнішнє «Я» людини її публічне «Я» [5, с. 54]. Вдалим іміджем лідера можна вважати такий, що відповідає запитам і уявленням соціальної групи. Це лише ґрунт для подальшої роботи над іміджем держави. Автори дослідження пропонують власне визначення функцій іміджу:

Стимулююча – потенційному лідеру створюється дещо незвичний для людини імідж, але бажаний для цільової аудиторії. Щодня об'єкт іміджу і команда фахівців працюють на те, щоб цей імідж прижився. Спершу існує індивідуальна незвичність, але мета того варта. Імідж лідера несе в собі інформацію на рівні підсвідомого – більшість бажає бути схожою на лідера, його судження є незаперечними і авторитетними. Здатність переконати маси, що носій іміджу є втіленням їх сподівань і ідеальних якостей, залежить від креативності, фаховості іміджмейкерів.

Імідж державного лідера формується в масовій свідомості радше на інтуїтивному, підсвідомому рівні, ніж на свідомому. Пропонуємо термін: **імідж-афірмація**. Йдеться віртуально створений бажаний образ, психологічний аванс.

Створення мотиватора, внутрішньої підйомної сили, за рахунок якої з мінімальними втратами об'єкт іміджу набуває життєвого успіху, іміджевої привабливості для мас і досягається мета, до якої йшла команда, – відповідний кінцевий імідж, заявлений раніше у афірмаціях. Визначення афірмація (від лат. *Afirmatio* — підтвердження) — коротка фраза, що містить вербальну формулу, яка при багаторазовому повторенні закріплює необхідний образ або установку в підсвідомості об'єкту іміджу (лідера), сприяючи поліпшенню психоемоційного фону людини і стимулюючи позитивні зміни в її житті. Це авторський психологічний прийом творення іміджу державного лідера.

Іміджмейкер В.В. Чекалюк у роботі з тими клієнтами, які планують балотуватися, підніматися по кар'єрній драбині, практикує самопрезентацію-афірмацію. Тобто клієнт готує сам своє бачення іміджу, а група іміджмейкер і психолог коректують, максимально наближуючи до можливостей лідера і очікуваних запитів аудиторії. Погоджується план дій і терміни їх виконання. Збувається на 99,9%. При цьому важливе оперативне підлаштування до обставин і запитів цільової аудиторії. Приклад, існує небезпека видатися ЗМІ надто м'яким, оскільки журналісти часто плутають толерантність і дипломатичність із безхребетністю.

Яким буде «кінцевий лідерський продукт» – залежить від майстерності команди і відповідності об'єкту очікуванням і запитам. Отже, яким бути лідеру XXI ст. – диктують час і обставини.

Держава і лідер – споріднені і нероздільні складові єдиного іміджу. Падають рейтинги лідера, втрачає позиції держава. Закономірність очевидна. Від дій і іміджу лідера залежить бажання зовнішніх потенційних партнерів співпрацювати з державою чи навпаки. На створення позитивного іміджу витрачаються роки, його можна за певних обставин втратити за мить. Адаптація у середовище і вміння тримати баланс – запорука стабільності іміджу лідера і його країни.

Важливий клімат, в якому відбувається творення іміджу. Політолог Д. Видрін вважає, що так званий «творчий клімат» має дві складові: комфортність клімату, естетику предметного оточення, толерантність соціального оточення і ступінь свободи політичної системи. Країна, у якої немає «світлого минулого», отримає «темне майбутнє» [6, с. 221].

Безперечно, навик спілкування із представниками ЗМІ, ведення власного блогу чи сторінки у соціальних мережах відіграють важливу роль у творенні іміджу політика. Лідеру під час комунікацій з медіа потрібно демонструвати небайдужість

до країни, зацікавленість у розвитку всіх сфер її діяльності; бути чуйним до проблем і відкритим для спілкування; здатним легко комунікувати з людьми різного віку, соціального статусу, статі, професій; викликати довіру; за будь-яких обставин вести себе виважено і невимушено; бути послідовним в діях і обіцянках, відповідальним і пунктуальним; готовим реагувати навіть на провокативні питання представників ЗМІ; працювати чесно, оперативно; вільно володіти державною мовою, бути обізнаним в історії, використовувати цитати класиків і історичні приклади, проводити паралелі та аналогії, мати широкий кругозір, вміти аналізувати ситуацію й прогнозувати її розвиток. Наведений список – своєрідна мірка ділових якостей лідера України XXI ст.

Алгоритм ефективного спілкування лідера з медіа. Відчуваючи агресію - рекомендуємо метод ігнорування як один із інструментів. Враховуючи статус і діяльність Президента, він може дозволити собі мовчання, але помірно – не більше як 30% з усіх комунікацій із пресою. Рейтинги зростають у тих, хто вміє витримати паузу. Надмірне мовчання лідера може викликати і антирейтинг – але це не на довго. Будь-яка стратегія лідера поширюється у ЗМІ і стає частиною свідомості мас. Імідж держави і її лідера – це продукт ефективних комунікацій за допомогою медіаінструментів. У статті авторами викладено наукове бачення творення репутації країни і її лідера за умов демократії, що стане у нагоді у практичному застосуванні творення іміджу держави і її лідерів, зокрема Президента. Очікуваний результат команда іміджмейкерів і піарників отримує не випадково, а лише за умов злагодженої роботи і продуманої стратегії.

«Західні ліберали завжди твердили, що цілком вільна преса є запорукою викриття корупції та формування прозорого й чесного уряду. Але не будемо забувати про те, що вільні й незаборонні преса й телебачення в Індії і Таїланді, на Філіппінах і Тайвані, у Південній Кореї та Японії не зупинили корупції, яка широко просякла адміністрацію цих країн на всіх рівнях; а найяскравіший приклад того, що вільна преса є просто інструментом корумпованої влади, – це колишній прем'єр-міністр Італії Сільвіо Берлусконі, який володіє широкою мережею ЗМІ, що не завадило йому стати об'єктом слідства та звинувачення в корумпованості ще до того, як він обійняв посаду прем'єр-міністра» [7, с. 175-176].

Пропонуємо зосередити увагу на привабливості глав держав, їх впливі на імідж країни. Дослідник В. Костиков згадує зустріч із французьким лідером Фран-

суа Миттераном. Коли лідер і його команда прибули до Москви з офіційним візитом, під час прес-конференції було встановлено десятки потужних софітів, які засвічували обличчя. Іміджмейкери пояснили, що таке потужне освітлення «знімає десятки років» з обличчя лідера. І справді, у зморшках, хворобливий на вигляд французький лідер виглядав свіжим на екрані. Тоді В. Костиков почав цей прийом використовувати на прес-конференціях Б. Ельцина, на що Президент Російської Федерації обурювався, але, побачивши результат на екрані, змирився.

Проаналізувавши роботи дослідників щодо даної тематики, пропонуємо узагальнити: ЗМІ виконують дві найважливіші, тісно пов'язані між собою функції: формують і підтримують імідж, спостерігають за політичним життям від імені соціуму та забезпечують репрезентацію публічної сфери, моделюють імідж держави, що базується не лише на існуючих фактах, а прогнозують його розвиток, створюючи нову реальність. Наразі державна влада США і країн ЄС широко використовує для формування мас-медіа. Імідж як продукт комунікації визначається не тільки його носієм. Позитивний політичний імідж держави виникає тоді, коли він зорієнтований на певні соціальні групи, певне коло реципієнтів, відповідаючи саме їхнім потребам.

Висновок. Наукова цінність результатів дослідження передбачає використання напрацювань авторів у розвитку соціальних комунікацій і практичній журналістиці, зокрема у налагодженні ефективних комунікацій між ЗМІ і державними органами, що сприятимуть творенню позитивного державного іміджу. А також матеріал буде корисним для фахівців сфери психології, теорії та історії соціальних комунікацій, PR-іміджетворення, державотворення; дипломатам у формуванні міжнародних стратегій економічного розвитку, національних стратегій міжнародного розвитку. Наразі праця кожного спрямована на те, що Україна повинна існувала як успішна самодостатня держава виключно для захисту прав і свобод своїх громадян. Підсумовуючи, зазначимо, що імідж держави – сформоване групою фахівців бажане відображення реального стану речей. Імідж формується у масовій свідомості за допомогою ЗМІ. Ми розглянули аспекти формування позитивного іміджу лідера держави, його вплив на сприйняття держави у світі і всередині країни. Імідж держави і її лідера – це продукт ефективних комунікацій з допомогою медіаінструментів. У статті викладено наукове бачення творення репутації країни і її лідера за умов демократії і свободи слова.

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Vitalie Malkoch,

*The Academy of Sciences of the Republic
of Moldova, Associate Professor, Doctor of Arts*

Sanctity of Mythical-spiritual Space of Village Civilization

The man has always created his life, existence and his living according to universal principles, expressed in habits, customs, rites and religious manifestations. Namely, the rural civilization preserves the durability of the archaic forms that contain an unaltered, harmonious and balanced life, rich in traditional values.

In this article, we discuss about the *place* or *space* inhabited by the man, who, like all practices, traditions and customs characteristic of a certain sacred territory, needs a cosmogenesis, or the world, which the man creates, acquires the true meaning only to the extent which reproduces the organized cosmos.

People from the village live in a perfect cosmic order, where all the things are naturally and permanently fixed. For them, the housing in which they spend their lives, the household and the land merge with the whole meaning of the existence. Thus, one of the principles of the human existence is the cosmic order. The sky, the earth and the people are developing together. The only way to follow the meaning of the evolution is to embrace by one glance these three spheres, in their joint effort, and to consider them to be an organic and inseparable whole [1, p. 304]. This vertical axis, which provides an opening to the transcendent, determined that sacred space, identified with the center of the world where the religious man has always sought to settle his village and house. "The center is, above all, the origin, the starting point of all things; is the main point ... the only image of the primordial Unity" [2].

The Romanian peasants have a cosmic vision through which the village is asserted as the center of the world. "The village is therefore in the middle of the world, and the world is everywhere. We say that here is the axle of the earth and the sky, all the things in the world have an arrangement and the arrangement consists of it" [3].

The cosmological symbolism, met frequently in any house, is equally authentic for village or town. "The multiple assimilations - between cosmos, county, city, temple, palace or shack - highlights the same fundamental symbolism: every image of this kind

expresses the experience of *being in the world*, namely being placed in an organized and significant world (...). The same cosmological symbolism, expressed in spatial and architectural terms, influences the house, city and the world" [4, p. 38-39].

The rustic cottage represents an aesthetic ideal of balance and harmony that became within the earth a *sacred microspace*, a deep harmony that prevails between microcosm and macrocosm, namely, between the man and the universe. In fact, the house is the image of the universe and therefore, the macrocosm being represented by the man, or "tiny human universe or the *microcosm*, is the mirror and the minuscule synthesis of the great universe, or *macrocosm*" [1, p. 23].

The world exists and it is manifested for the county people by two coordinates: *time* and *space*. The representation of the space at the level of general mentality of the traditional village rises up to cosmic dimensions and meanings. Inside this organized space and charged with sacred power, the peasant creates a world of his own (the microcosm) which is - *dwelling*.

As we noted above, the cosmic symbolism is found in the structure of any dwelling. Hence, the house results to be an *imago mundi* "since the sky was conceived as a huge tent supported by a central pillar, the tent pole, or the central pillar of the house, was assimilated with the Poles of the World and was named like that" [4, p. 39].

Establishing the future settlement of the house was going on with great attention according to certain practices. M. Eliade writes: "Choosing the place on which the church, town or house would have been built, was done with great care" [5, p. 431]. And he still brings an example from India of choosing a sacred place for future dwelling "before any stone to be placed ... the astrologer shows what point of foundation is just above the head of the Serpent that supports the world. The builder makes a stake from the wood of a *Khadir* tree, and beats the stake in the ground with a coconut, exactly in the right point (...). A cornerstone (*padmasila*) is fixed over the stake" [5, p. 431].

Otherwise the identified stake with the pillar, is shown also in the rituals of founding the settlements in the Romanian traditional culture. Here it falls under the category of axial symbols, associated with the Axis of the World, the center of the world - "house, dwelling are, somehow, located in the center of the world, but also every house from the village is situated the center of the world" [6, p. 18].

The fact that every house from the village is placed exactly in the center, is explained by marking the axiological, psychological and sacral value of the *center*. The center is a crossing point and a channel of communication between different levels and

cosmic regions. From anthropological and anthropocentric point of view, the center is there where it is the man. Such a center can be the house, village, or country. "The World Creation starts from the Center (= "navel") and imitating solemnly this exemplar model, any "construction" and any "manufacturing" starts from the "center" [7]. "Here, the "center" or "the earth navel" is not a place located topographically, but a place in principle, whose hypothesis can be considered any "center" well established and committed' [5, p. 435]. So, if any act of construction is imitated after cosmic archetype, then the building of any house involves the ritual creation of the "center". Of course that "...the space in which is located this "center" is not our space, because otherwise it would be impossible the multiplicity of the "centers" or (...) the other peoples who believe that every house they build is *exactly* in the "earth navel", they do not doubt of the uniqueness of the "center", or the multiplicity of houses, temples, cities etc." [5, p. 435].

The orientation and ritual construction of the sacred space has a cosmogonic value; because the ritual through which the man build up a sacred space is effective to the extent that *reproduces the work of the gods*, namely: cosmogony [4, p. 35]. If the rituals of foundation represents the repetition of cosmogony, it means that the house is the universe which the man creates imitating the paradigmatic creation of the gods.

If we return to the rites of founding the settlements in the Romanian space, then the future house is built up by the advice of the most honorable old man from the village, fact that is respected at the foundation of any village. "When the village was being founded, the first man was beating a stake in the ground which he considered as the basis or foundation" [8]. This beaten stake or pillar "tantamount to settlement and determination of settlement in the cosmos from a fixed indication point" [9].

Moreover, there exists a ritual dance for settling the foundation that had to be raised up, as we have seen, not in a place chosen by chance. "In the oat and alphorn songs of the shepherds, the whole village would dance "a traditional dance": a mince and heavy-footed dance, which began in the mid of a new hearth, where it had to be built up, and then it moved from a future house settlement to another. And so to the end, *all the village pillars were beaten under the feet, through dance*" [10]. Ion Ghinoiu mentions in his studies about a polyvalent magic practice "the ritual beating" which "is the key sequence of the scenario of shelter foundation (house, village, state, place of worship, tomb, cemetery), known as "Beating the stake or the pillar...." [11].

Thus, for founding a village, a stake was beaten as the center of the settlement, but also as the foundation of the village hearth. Or, by the image of a pillar can be expressed the house designation, the imbedding of a pillar, stake or pole has always instituted by itself a place, or establishes symbolically a housing. And the symbols, by themselves, made up the support on which was built the spirit of our forefathers. "The symbolic thinking can not be replaced by any other type of thinking. The man, any man, even the contemporary man, although he does not realize, he opens himself through the symbol to the cosmos, the world, to his own life" [6, p. 17].

Along with the symbolism of the peasant house, each component part, shape or detail that constitutes it, also keeps a sacred burden at a symbolic level. If we fail apart the house into three nodal components: roof, trunk and foundation, appears the rising vertical axis that allows us to talk about the representation of different phases of the evolution of the architectural art. The movement from the foundation to the roof or from the bottom to the upper part, represents an approach to absolute values of the sky, an overrun of the terrestrial condition. The case reminds us of the legends regarding the remoteness of the sky and earth, taking into account that "the primary conical or pyramidal housing - departed from the earth and became *roof*" [12].

So, the house remains the reflection, or the architectural image of the universe. "The house of the archaic man was not a "machine for living", but all that he imagined or did, a crossing point between several cosmic levels. Sheltering into a house, the archaic man did not isolate himself from the cosmos, but rather came to live in the very center of it. For the house was itself an *imago mundi*, an icon of the cosmic whole" [5, p. 466].

Noting the landmarks that determine the place and the designation of the house in the space of its existence, we would describe endlessly the meaning and the symbolism of all habitat forms (porch pillars, threshold, fireplace, chimney, windows, gate etc.), things that we will implement into a future study.

Summarizing the above, we can say that the county house is first of all the generator place in material and spiritual sense. This place is seen as an area with specific qualities that carries out a number of influences on human life, or "the man's destiny is related in various ways to the shelter from which he saw the daylight" [13].

The space in which the peasant lives is closely connected, through a lot of threads, with the world of beliefs, customs and behaving acts of the peasant, is the materialization of a philosophical vision of the world, a manifestation of the Romanian

traditional culture, a vivacity of the mythological millennial consciousness of the quotidian, fact that ensures a harmony and a balance between the microcosm of the human existence and the microcosm.

"To live the life mythologically means to live the nature in a supernatural way, that is possible for anybody and anytime" [14]. This is fully illustrated by the decor and the ornaments of the folk art, which miracle consists primarily in its artistic expression, which carries us our imagination in the infinity of plastic forms that determine it. At the basis of these forms there is a conceptual system, full of ideas embodied in ancient symbolic iconographic signs, handed down from generation to generation until the modern age. Today we can enjoy the beauty on different elements and details, especially in the Moldovan folk architecture.

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Volodymyr Mokliak,

*Poltava V. G. Korolenko National Pedagogical University,
Candidate of Pedagogical Sciences, Associate Professor,
Associate Professor of The Department of General Pedagogics
and Andragogy, Doctoral Student of The Department
of General Pedagogics and Andragogy,
Physics and Mathematics Faculty*

Idea of the autonomous higher educational establishment in domestic pedagogical opinion of XIX c.

Abstract: Article is devoted to the analysis of idea of the autonomous higher educational establishment in domestic pedagogical opinion of XIX c. M. Bunge, S. Uvarov, M. Kostomarov, K. Kavelin's and other views to the organization of effective activity of universities of the studied period are considered, their views to the autonomy and the academic freedoms of higher educational establishments are allocated. It is shown that researchers of XIX c. supported the expansion of the university autonomy.

Keywords: autonomy, academic freedoms, autonomy higher educational establishment, domestic pedagogical opinion of XIX c., university, Russian empire, statute.

Володимир Мокляк,

*Полтавський національний
педагогічний університет імені В. Г. Короленка,
кандидат педагогічних наук, доцент,
доцент кафедри загальної педагогіки та андрагогіки,
докторант кафедри загальної педагогіки та андрагогіки,
фізико-математичний факультет*

Ідея автономного вищого навчального закладу у вітчизняній педагогічній думці XIX ст.

Анотація: Стаття присвячена аналізу ідеї автономного вищого навчального закладу у вітчизняній педагогічній думці XIX ст. Розглянуто погляди М. Бунге, С. Уварова, М. Костомарова, К. Кавеліна та ін. на організацію ефективної діяльності університетів досліджуваного періоду, виокремлено їх погляди на автономність та академічні свободи вишів. Показано, що дослідники XIX ст. виступали за розширення автономії університетів.

Ключові слова: автономія, академічні свободи, автономний вищий навчальний заклад, вітчизняна педагогічна думка XIX ст., університет, Російська імперія, статут.

Період XIX ст. в історії розвитку України є надзвичайно важливим. У цей час на території Російської імперії, до складу якої входили і українські землі, почали створювати університети. Їх створювали на зразок німецьких, тому гумбольдтівська ідея вільного дослідницького університету поширилася ще на одну країну. Усю територію країни було поділено на навчальні округи, центрами яких ставали університети з метою активної наукової, навчальної, культурної, просвітницької роботи в регіоні. Першими університетами, які було відкрито на території Центральної, Східної та Південної України, стають Харківський (1804), Київський (1834) та Новоросійський (1865) імператорський університети. Основним документом, який регулював діяльність університету, був статут. Упродовж XIX ст. було видано 4 статuti (1804, 1835, 1863 та 1884 рр.). Наступний статут не встигли прийняти у зв'язку з соціально-політичними подіями в країні початку XX століття. Статuti відображали ставлення влади до вищої школи, інколи враховувалася і думка громадськості щодо управління вишами (зокрема, відомі в історії 2 томи зауважень до проекту статуту, який було прийнято у 1863 р.) [4, 5].

Сучасний стан розвитку системи світової вищої освіти переконує в тому, що університет, які і інший вищий навчальний заклад, повинен бути мінімально залежним від впливу держави, релігійних та політичних організацій, тобто володіти високим рівнем автономії та академічними свободами (свобода наукових досліджень, викладання та учіння). Поняття “університет” увійшло до наукового обігу дуже давно. Перші європейські університети виникають у XII ст. 900-літній поступ розвитку вищої школи окреслив вимоги, яким повинні відповідати вищі навчальні заклади сьогодення. Так, у відомому словнику А. Брокгауза та І. Єфрона сказано, що “... с понятием университет соединяют представление о высшем

учебном заведении, которое, имея целью свободное преподавание и развитие всех отраслей науки (universitas litterarum), независимо от их практического приложения, пользуется вместе с тем, под контролем правительства, широким самоуправлением (органы его – ректор, совет и правление) и предоставляет слушателям значительный простор в выборе и направлении своих научных занятий и частной жизни” [10, с. 751]. Активно створюються та діють студентські організації, розвивається студентське самоврядування [8]. Варто зазначити, що студентське самоврядування в сучасних українських вищих навчальних закладах отримало потужну нормативно-правову базу, а також фінансування (у розмірі не менш як 0,5 відсотка власних надходжень, отриманих вищим навчальним закладом від основної діяльності), визначене Законом України “Про вищу освіту” (стаття 40) [3].

Саме через активну діяльність зі створення та реформування системи вищої освіти і викликаний великий інтерес учених, просвітників, громадських діячів до організації та особливостей управління вищими навчальними закладами досліджуваного періоду. Як німецький університет (“...никогда не являлся абсолютно **автономным**, никогда полностью не соответствовал идеалам свободной науки, свободе и единству исследования и обучения” [11, с. 5]), так і українські вищі навчальні заклади прагнули до автономії. Це зустрічало підтримку з боку учених та дослідників, які працювали в сфері вищої освіти та видавали друковані праці в ХІХ ст.

Сергій Семенович Уваров (1786–1855) – державний діяч, граф, міністр освіти Російської імперії (1833-1849 рр.). Під його головуванням було усе-таки видано загальний статут імператорських російських університетів, робота над яким тривала цілих 9 років і міністерство було переповнено “грудюю написанных параграфов” (тобто проектами) [11, с. 127].

На думку С. Уварова, діяльність міністерства народної освіти зі створення та розвитку університетів повинна бути набагато кращою. “Университеты существуют только по имени” [11, с. 125]. Причиною низької ефективності діяльності університетів є стан середніх та нижчих училищ. С. Уваров проголошує, що освіту повинні давати відповідно до здібностей людини – одним достатньо початкового рівня, іншим середнього, деякі ж ідуть до вищої школи та продовжують наукову

діяльність. Крім того, на думку міністра народної освіти, потрібно враховувати місцеві особливості освіти населення; поширювати думку, що уряд прагне освіти для всіх у залежності від потреб суспільства.

Університети мають бути вершиною вищої освіти, але потрібно обов'язково враховувати розумові потреби та можливості населення регіонів, а також розробляти відповідні статuti. Важливе значення має стійка моральна позиція, “достойный” професорсько-викладацький склад університетів та відповідна заробітна плата викладачів [9].

Микола Христианович Бунге – публіцист, фінансист, державний діяч. Уважав важливим питання про управління університетом, виступав за виборність основних посадових осіб університету, право ради університету розпоряджатися фінансами, розширення кількості членів факультетських рад, перепідпорядкування студентів губернській владі [2]. Позитивним було б надання права ад'юнктам та доцентам мати свій голос на раді факультету.

М. Бунге виступав за академічну свободу: “... рассматривая университет не как школу, а как учреждение для высшего образования, в котором первое условие – самостоятельность, не можем не признать превосходства порядка преподавания и слушания лекций по выбору профессоров и студентов... Но выбор частей предмета для чтения и для слушания возможен только при хорошем приготовлении студентов” [2, с. 184]. В університеті, який би мав таку академічну свободу, повинен бути відповідний якісний викладацький склад.

Провідне завдання університету, за М. Бунге, – студенти повинні винести з університету не завчені, а **здобуті самостійно знання**. Дослідник підкреслює позитивні здобутки вищої освіти: рідкісні випадки хабарництва, гарні відносини між викладачами та студентами, мала частка формалізму в роботі, а основне – це те, що університети дали населенню “просвещение” [2].

Микола Іванович Костомаров – історик, археограф, етнограф, публіцист, письменник. На його думку, виховання і навчання – не одне і те ж саме. Виховання передує освіті і повинно вести до неї; закінчується зі вступом у зрілий вік. Освіта ж притаманна будь-якому віку і не припиняється до старості. Таким чином, М. Костомаров – прихильник освіти упродовж життя, як і відомі сучасні дослідники (А. Бойко) [1]. У своїх працях він розглядає корпорацію студентів та описує, які повинні бути професори. Застерігає професорів прагнути до популярності на за-

няттях, переконливо доводить, що заняття серйозною наукою зроблять лекції викладача популярними, і не важливо, що їх будуть відвідувати різні студенти (як підготовлені, так і не дуже) [7].

Костянтин Дмитрович Кавелін – історик, юрист, публіцист, філософ та громадський діяч. У 1862 р. вивчав організацію університетів у Швейцарії (2 університети) та Німеччині (сім університетів). Окреслив 2 шляхи розвитку вищої університетської освіти: романо-католицький (авторитет та влада) і німецько-протестантський (головною є наукова діяльність, яка базується на індивідуальній свободі). Вказував на переваги німецької системи вищої освіти, коли реалізується ідея двох свобод – учіння та викладання. Звертає увагу на те, що **університетська автономія** має довгу історію, проте існує тенденція обмеження прав університету як корпорації. Праці К. Кавеліна та його діяльність сприяли позитивному реформуванню університетів Російської імперії [6].

Отже, як свідчить аналіз джерел, дослідники XIX ст. виступали за розширення автономії та академічних свобод вищих навчальних закладів. Автономія вишів має довгу історію розвитку та сприяє їх ефективній діяльності, підготовці конкурентоздатних випускників та підвищує відповідальність перед суспільством.

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Aliyeva Gulana,

*National Academy of Sciences of Azerbaijan,
the Institute of Archaeology and Ethnography, Researcher*

About some ancient Albanian settlements in occupied territories of Azerbaijan

*Алиева Гюлана, Национальная Академия Наук Азербайджана,
Институт Археологии и Этнографии, научный сотрудник*

О некоторых античных Албанских поселениях в оккупированных территориях Азербайджана

В результате военной агрессии со стороны Республики Армения оккупировано более 20% территории Азербайджана, более 900 населенных пунктов разграблено, сожжено и разрушено. На захваченных территориях Азербайджана разрушено более 927 библиотек, 464 исторических памятников и музеев, более 100 археологических памятников, 6 государственных театров и концертных студий. Из разграбленных музеев похищено более 40 тысяч ценных предметов и редких экспонатов. Так, после полного разрушения Кельбаджарского историко-краеведческого музея редкие золотые и серебряные украшения, сотканые в прошлые века ковры, входящие в экспозицию музея, были вывезены в Армению. Такой же оказалась судьба и Шушинского исторического музея, Агдамского музея хлеба, Зенгилянского музея каменных памятников.

Обратим внимание на некоторые античные Албанские памятники на оккупированной территории. Одним из них является многослойное поселение Гаракёпектепе вблизи города Физули, в междуречье Гуручай и Кенделенчай. В 1895 г. Э. Респером были произведены первые изыскания в Гаракёпектепе, при раскопках которого были выявлены обожжённые кирпичи квадратной формы [1]. В 1965 г. Физулинским отрядом Сектора археологии и этнографии Института истории Академии наук Азербайджанской ССР под руководством Г.С. Исмаиляде началось стационарное исследование памятника Гаракёпектепе, где

были вскрыты культурные отложения от раннебронзового периода до раннего средневековья [2].

В результате археологических раскопок в античном культурном слое памятника, мощностью 3 м, были открыты остатки крупного поселения: фундаменты четырёхугольных в плане зданий из речного булыжника, остатки очагов, хозяйственные кувшины и керамика IV-III вв. до н.э. Толщина обнаруженных стен составляла 1,5 м, а высота достигала 1 м. Стены и полы имели толстый слой глиняной обмазки. Ф. Османов сделал вывод о том, что в тот период техника строительства бытовых и общественных зданий, возводимых на каменных фундаментах, уже была усовершенствована [3]. Описанные помещения, а также другие строения поселения Гаракепектепе были заполнены толстым слоем золы, пепла, древесного угля, обожжённой земли, камней и кусков глины, свидетельствующие о том, что здесь произошёл сильный пожар, вследствие которого город погиб и перестал существовать [4]. Г. Исмаилзаде предположил, что прекращение существования города было связано с восточным походом Александра Македонского, когда один из его греко-македонских гарнизонов смог достичь южных границ Кавказской Албании. Учитывая то, что в результате археологических раскопок был обнаружен также средневековый культурный слой, толщиной около 2,7 м, можно утверждать, что город был заново возобновлён и продолжал своё существование вплоть до монгольских нашествий.

Материалы, обнаруженные на Гаракепектепе, свидетельствуют о значительной заселённости этой местности [5]. Причиной столь длительного заселения памятника в самые разные исторические эпохи было выгодное стратегическое положение Гаракепектепе. Довольно выгодное месторасположение Гаракепектепе превращало город в один из главных опорных пунктов Кавказской Албании. Оно располагалось на самой южно границе Албании, на месте пересечения древнейших путей, соединявших Кавказ со многими странами Востока, в том числе с Иранским нагорьем.

Ещё одним памятником, также расположенным в оккупированной части Карабаха, является позднеантичное городище Говургала в Агдамском районе. Его изучение началось в 1958 г. археологической экспедицией Института истории АН Азербайджанской ССР [6]. Во время раскопок были выявлены остатки христианского храма и выяснены структура и план города. В результате раскопок было

установлено, что Говургала охватывает довольно обширную территорию. Начиная с 1969 г. Р.Б. Геюшевым были возобновлены археологические исследования, в результате которых была выявлена часть города античного периода и исследован городской некрополь. В 1976-77 гг. под глинобитной стеной было выявлено грунтовое погребение V в. до н.э. Оно доказало, что Говургала является многослойным памятником. На основе проводимых раскопок и выявленных археологических материалов, а также основываясь на исторической литературе Р.Б. Геюшев пришёл к выводу о том, что поселение Говургала является остатком города Агуен, являвшегося летней резиденцией албанских правителей [7].

Существуют различные мнения о локализации и наименовании Говургала. Некоторые армянские исследователи считают, что якобы в I в. до н.э. Тиграном был основан город Тигранакерт, который локализуется местностью Говургала. После начала раскопок и комплексного изучения поселения и окружающей её территории Р.М. Вахидов пришёл к выводу о том, что Тигранакерт локализуется местностью Шахбулаг, в селении Тарнакут [8]. Здесь в 1751 г. Карабахский хан Панахалихан построил крепость Тарнакут, ныне известную как Шахбулаг. После переселения Российской империей армян, помещенные в Шахбулаге, стали называть между собой эту местность Тигранакертом в память об одноименном античном городе в Малой Азии (Турция) [9]. Хотя и армянские фальсификаторы относят Тигранакерт к античному периоду, никакого упоминания об этом не имеется ни в античных, ни в более поздних источниках.

Ещё одним значимым памятником на территории Карабаха является трёхслойное поселение Нергизтепе. Памятник расположен на линии фронта, на границе оккупированной части Ходжавендского района. В 2013 году Институтом Археологии и Этнографии АН сюда была организована разведочно-поисковая экспедиция под руководством Т. Алиева.

Исследования показали, что памятник состоит из трёх культурных слоёв: средней бронзы, античности и средневековья. В результате исследований в южной части памятника, на глубине 2,5 м были выявлены следы стен сложной конструкции, строительные остатки из больших овальных камней. Обнаруженные вокруг глиняные и стеклянные образцы посуды подтверждают принадлежность данных строительных остатков к раннесредневековому албанскому зодчеству. Расположенное неподалёку большое погребение, знаки и клейма на

надгробиях, надписи на арабском языке, а также топонимы дают основание утверждать, что данный памятник принадлежит Азербайджанским тюркам.

Оккупация в настоящее время армянскими вооружёнными силами части территории Карабаха не дает пока возможности системно изучить эти памятники. Республика Армения, грубо нарушая положения Гаагской Конвенции «О защите культурных ценностей во время военных конфликтов» и Парижской Конвенции «О незаконном обороте культурных ценностей», занимается разграблением культурных ценностей Азербайджана.

Несмотря на требования, выраженные в резолюциях Совета Безопасности ООН №№ 822, 853, 874 и 884 о необходимости признания территориальной целостности Азербайджанской Республики и освобождения без предварительных условий оккупированных территорий Азербайджана, Республика Армения и сегодня продолжает проводить свою захватническую политику [10].

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Hamze Dimitrina Georgieva,
Plovdiv University "Paisii Chilendarski",
Assistant and University Lecturer,
the Faculty of Slavonic Philology

***The semantic and pragmatic communication panoramic
perception of language as a "predetermination"
of the pragmatic kaleidoscope
characteristics of grotesque***

Хамзе Димитрина Георгиева,
Пловдивский университет
им. „Паисия Хилендарского”,
ассистент кафедры славистики

***Семантическая и коммуникативно-
прагматическая панорамность языка как
„предопределенность” прагматической
калейдоскопичности гротеска***

Коммуникативно-прагматическая функциональность гротеска, как творческая комбинаторика и новаторское „повторение” языкового коммуникативного резерва, имеет кардинальное значение для современной лингвистики, как с точки зрения обогащения и дальнейшего профилирования самого гротеска как эстетической категории (не только в искусстве в целом, но особенно в лингвистике), так и с точки зрения „приобретения гибкости”, дешаблонизирования и оплодотворения коммуникации вообще. К сожалению, к настоящему времени гротеск слишком слабо и сравнительно односторонне изучен, а исследования категории в коммуникативном и лингво-прагматическом аспекте отсутствуют.

Цель настоящего исследования не только найти общую платформу между языком и гротеском в коммуникативно-речевом пространстве, но и доказать, что

коммуникативная удача (которая в первую очередь зависит от узнавания и адекватной перцепции гротеска со стороны адресата (т.е. от его углубления в семантику гротеска) по линии производитель речи – адресат в гротесковом поясе немислима без выделения схожих „гротескогенных” языковых данностей („задатков”), которые делают язык естественным первоисточником гротеска и иллюстрируют реципрочную преемственность между двумя бытийностями – гротеск унаследует и креативно претворяет языковые „залежи”, а язык дополняет свой семантико-функциональный регистр, благодаря гротеску. Задачи, связанные с достижением научной цели, сконцентрированы на решении нескольких вопросов: предпосылки для коммуникативного симбиоза языка и гротеска, соотнесение их коммуникативных регистров, когерентность как связывающее звено между двумя величинами, понимание как фокус коммуникативности – общая конститутивная примета и языка, и гротеска, роль перформативности для коммуникативной удачи гротеска как следствие перформативных возможностей языка, роль гротеска для осознания „врожденного” родства между семантикой и прагматикой в языковом пространстве.

1.1. Коммуникативное родство языка и гротеска

Коммуникация – интегративная (и интерактивная) совокупность множества внутри- и внеязыковых факторов, которые действуют в синергетическом ансамбле и постоянно ее подпитывают и поддерживают. Гротеск можно уподобить ее артистическому макету. Как интракоммуникативные (между элементами в рамках гротескового изображения), так и интеркоммуникативные (между гротеском и внешними относительно него бытийностями) связи, идентифицируют его как одну из наиболее ярких, активных и полемико-дискурсивных категорий. Восприятие и интерпретация гротеска не должны были бы представлять особое испытание для адресата по меньшей мере по двум причинам: 1) естественный коммуникативный рефлекс индивидуума, усиленный взглядом сквозь яркую визуальность гротескового изображения, находит благодатную почву для „проявления” именно в гротесковой зоне, маркированной высокой степенью коммуникативности; 2) язык – как врожденная данность индивидуума – со своей панорамной коммуникативной платформой есть первообраз (прототип) гротескового коммуникативного „архипелага”, это достаточная предпосылка для естественной перцепции гротесковой речевой динамики (его беспрепятственного овладения).

1.2. Функциональная грамматика тоже представляет собой такой коммуникативный синтез:

Функциональную грамматику дефинируют как лингвистическую дисциплину, чьим предметом являются значения, формы и грамматические категории в свете их коммуникативной реализации в речевых актах [1] (Здесь и далее перев. с пол. – мой, Д. Х.).

В первую очередь они „коммуникативны” между собой, а потом и в перспективе диалога Производитель речи – Адресат.

В коммуникативном плане гротеск представляет собой сочетание множества регистров, которые совпадают с основными пятью коммуникативными регистрами (жанрами речи), выявленными Г. Золотовой по наблюдениям Ал. Киклевича, которые я дополнила бы двумя новыми, типичными для гротеска. Язык как абстрактная система содержит их в идеальном виде, потому что большая редкость, чтобы в речи они актуализировались все вместе, а гротеск как языковой компендиум тоже охватывает их, даже в целостном виде, но не эксплицируя некоторые из них:

а) репродуктивный (репрезентативный) – представление событий;

б) информативный – осведомление о знакомых говорящему событиях при абстрагировании от их конкретных темпоральных и пространственных особенностей;

в) генеративный – обобщение информации, ее интерпретирование на фоне жизненного опыта говорящего;

г) волюнтаривный – выражение воли говорящего, побуждение адресата к активности;

д) реактивный – вербальная реакция субъекта на событие [по 1].

К этим регистрам я добавляю еще два, которые переплетаются и взаимно дополняют друг друга:

е) экспрессивно-оценочный – эмоциональная реакция субъекта и его аксиологическая позиция относительно представляемого события;

ж) эстетический – художественный настрой производителя речи, сопровождаемый соответствующей экстатической реакцией.

1.3. Когерентность гротеска как его конститутивная характеристика „дублирует” когерентность языка как совокупность и интерференция всех идиолектов, которые „социализируются” и оформляют общественный

характер языка. Следовательно, вопреки подчеркнуто субъективной, идиолектной и неологической специфике гротеска, из-за необычайных связей между его компонентами, его восприятие и толкование, его иллокутивная и перлокутивная удачливость (эффективность), не только возможны, но и в значительной степени облегчены и „предопределены” коммуникативными „месторождениями” языка. Коммуникативная „консистенция” гротесковой образности доказывает ее ведущую роль в процессах концептуализации, категоризации и реструктуризации мира.

1.4. Понимание – осевой центр коммуникативности – приоритет как языка, так и гротеска

Коммуникативность гротеска как панорамная, чаще всего многофразовая (и многофазовая) текстуальная категория, стимулируется и поддерживается спецификой самой коммуникации, покоящейся на понимании, связанном с более крупными текстуальными целостями:

В конце концов мы добиваемся понимания не с помощью звуков, слов, словосочетаний, даже не с помощью предложений, – мы добиваемся понимания с помощью текстов, многофразовых высказываний (однофразовые лишь их частный случай) [2].

Трудности, связанные с пониманием, как часть природы самого языка, есть и в гротеске, но там они хоть в какой-то мере преодолимы, благодаря его образной пластичности, многоцветности, многозвучию и эстетической экспрессивности, которые не только „визуализируют” и „синестезируют” то, что язык в своем конститутивно-стандартном состоянии не может показать и передать, но активно стимулируют мозговую деятельность самыми разными ассоциациями, которые направляют и „подсказывают” понимание. По отношению к языку А. Авдеев выделяет трудность уловить латентный смысл:

[...] есть большое расхождение между поверхностным выражением и скрытым смыслом, которое невозможно обнять никакими внутриязыковыми правилами. Кажется, что между поверхностным смыслом и скрытой прагматической силой располагаются связывающие их прагматические условия. Установить эти связи, однако, нелегкая задача, так как чаще всего у них нет каких бы то ни было формальных показателей [по 3].

И далее дополняет: *[...] установление данной прагматической функции, выраженной не явно [...] можно считать наиболее трудным в лингвистике [по 3].*

2.1. Речевой калейдоскоп¹ гротеска – отражение речевой палитры языка

2.2. В поиске прагматико-речевых параллелей между языком и гротеском мне кажется особенно важным подчеркнуть тот факт, что порой ни пропозициональное содержание, ни иллокутивная цель не являются достаточными для успеха данного РА. В ходе коммуникативного обмена **психические состояния** участников в дискурсе меняются, а наряду с ними меняется и характер их взаимодействия. Определенная трансформация может вызвать новый тип отношений, связанностей, ожиданий. В этом смысле и психические состояния могут играть роль перформатива, доказывая тезу, что понятие „перформативность” нельзя связывать только с определенными глаголами и/или вообще с чисто языковыми конструкциями. Перформативность легла в основу самой иллокуции, даже еще раньше ее – в модальном профиле производителя речи, который посредством различных невербальных сигналов – или как сопутствующих речи, или как единственного для данной ситуации коммуникативного маркера, – посылает „инструкции” к действию (в результате воздействия) адресату. Й. Шимура отмечает следующее:

[...] иллокутивная сила зависит также от того, кто, когда, относительно кого и каким образом – подмигиванием, пожатием плечами или насупливанием бровей – делает что-то, говоря [6].

2.3. В то время как суждения констатируют определенные состояния вещей (исследуемые с точки зрения их истинности), иллокутивная энергия показывает адресату, как он может понимать эти констатации, или же что „делать” с ними. Сами иллокутивные силы принадлежат скорее всего к **сфере действия** [по З] и поэтому „покидают” зону грамматики и логики (мы рисковали бы даже утверждением, что чем сильнее выражены их неграмматичность и нелогичность, тем больше степень их иллокутивности, т.е. перформативности). Гротеск, являющийся анти-логикой, а обычно и анти-грамматикой, оказывается

¹ О богатом спектре речевых актов в гротесковой зоне см. статьи: Философско-эстетические и лингво-прагматические ресурсы гротеска (на материале творчества В. Гомбровича) [4] и Гротеската в когнитивно-прагматичен ракурс (върху материал от творчеството на Витолд Гомбрович) [5].

как раз той сферой действия, которая и влияет на адресата, подталкивая к новому действию. Сам язык со своими ограничениями, чтобы одолеть их, вступает в роль „инструктора” и „перформатора” по отношению к гротеску – словно учит его, что ему „делать” с ним, а гротеск, со своей стороны, учит адресата что „делать” и с ним, и с языком. Само употребление языка, как с основанием замечает Т. Згулка, это принятие решения к действию, каким является стремление к достижению определенной цели:

[...] в теории речевых актов оперируем действенным характером понимания языковой коммуникации, что означает, что мы используем язык с намерением реализовать конкретную цель [7].

Именно иллокутивный акт предопределяет креативное толкование и многоликое функционирование косвенных актов, какими являются комемы (ирония, пародия, гротеск). Перформативность характерна для любого искусства, но где-то выражена более открыто, а в других местах – более глубинно (иносказательно). Даже семантика потенциально и „прогностично” перформативна, а споры между сторонниками семантики и адептами прагматики беспочвенны, так как, на мой взгляд, обе сферы как сообщающиеся сосуды или два лица Януса – семантика есть латентная, вероятностная и проспективная „прагматика”, а прагматика – исходная и ретроспективная „семантика”. Сам факт, что семантика охватывает и другие проявления языка и не замкнута только в лексических единицах, означает, что она „текстуализируется” как смысловая совокупность элементов со сложными взаимосвязями и взаимодействиями, означает, что она прагматизируется, а чем же еще является прагматика, если не семантикой в действии. Следовательно, связи между семантикой и прагматикой реципрочны: семантика - это „сырье” („закваска”) для прагматики, а прагматика досемантизирует семантику. В подобном духе констатация Й. Шимуры:

*Иллокутивная сила всегда есть элемент значения фразы, который, подобно другим семантическим элементам, не всегда выражен *explicite*, но который, на основании языковых свойств высказывания, может быть реконструирован. Языковые свойства, выражающие именно эту часть значения, охватывают не только его синтаксические и лексические особенности, но и ударение, интонацию, оперирование паузами и т.д. [6].*

2.4. Следовательно, каждое высказывание по своей сути перформативное, несмотря на то, эксплицитно ли выражена его перформативность –

посредством „действенных” глаголов, или имплицитно, только посредством „подпочвенной” иллокутивной цели производителя речи, чье намерение – вызвать определенную реакцию – будь она лишь мысловная (мысль - интеллектуальное действие) – у адресата. В лингвистической перспективе гротеск есть подчеркнуто перформативная величина – его повышенная перформативность обусловлена визуализированием актуальных и возможных связей и взаимодействий в его зоне, как и поэтапным, процессуально-протяжным характером – и выстраивания гротескового образа, и его воздействия на Читателя. По сравнению с другими средствами, у изображения более сильный суггестивный эффект влияния на сознание субъекта и большая перформативная сила, поскольку активное воздействие является в то же время и стимулом к активному действию. Как при косвенных вопросах (*Ты можешь подать мне соль?*) ответ не достаточен, потому что его обязательно должно сопровождать соответствующее действие, так и при гротеске не достаточно, чтобы его расшифровали и восприняли; сам он должен породить не только желание перемены, возвышения и совершенствования, но и конкретные действия в этом направлении. Синтезированная иллокутивная цель гротескового производителя речи - вызвать определенную трансформацию у реципиента.

В следующем гротесковом фрагменте материализованный дейктор – указывание „вживую” как прикосновение пальцем, наряду с языковыми демонстративами, превращается в магический перформатив „многопрофильного” действия – соматический жест возвышает невесту Генрика (опустившуюся до уровня простой служанки легкого поведения) до преданной, невинной и чистой супруги; сам Генрик берет на себя роль жреца или демиурга, который сам сотворяет и задает себе обручальную церемонию; окружение автоматически преобразуется в покорную массу, которая должна контрастно отразить „сакральность” супружеского обряда. Дейктико-перформативное действие есть и Формотворческий акт, „узаконяющий” свою диктатуру, производя неотменные ультиматумы, чьим проводником становится Генрик – одновременно создатель (автор) Формы и ее „жертва”. Ситуативно-поведенческая оксимороничность гротесковой картины поддерживается „букетом” речевых актов: декларативами, волевитами, менасивами (означающими угрозу), экспрессивами (посредством повторения и его производных – редупликации и тавтологии, в том числе и посредством рефренной фразы (*paść na kolana*), посредством междометий и

утроенного адресатива), классифицированными по силе воздействия прилагательными-эпитетами, а также – пространственными параметрами, отмеченными противоположными по вертикали векторами. Подчеркнутая (Отявлената) перформативность гротескового сегмента, с одной стороны, ставит текстуальные партнеры в коммуникативную среду (несмотря на то, что слово может быть отнято у них) и, задавая им коммуникативные императивы, заставляет их „коммуницировать”, т.е. поступать навязанным им вездесущей Формой образом, а, с другой – речевой спектр продуцирует новый речевой ансамбль по линии Автора – Читателя, чья перформативность вызывает определенные реакции в поле Читателя.

Henryk

[...]

Ja zbliżę się do niej i... i co ? I, na przykład, dotknę ją...

Dotknę ją... tym palcem... i to będzie oznaczać, że ja poślubiam

i że stała się moją prawowitą, legalną, wierną, niewinną i czystą małżonką. Nie potrzebuję innych ceremonii. Ja sam sobie stwarzam moje ceremonie. A gdy tylko dotknę jej, wy macie paść na kolana i padnięciem podnieść moje dotknięcie do wyżyn przenaświętszej świętości... do wyżyn małżeńskiego obrządku...

Ośmielcie się nie paść na kolana! Ośmielcie się nie oświęcić waszym ukłęknięciem! A teraz naprzód, naprzód, dalej, dalej, o, Henryk, Henryk, Henryk!² (Ś, s. 214) (здесь и далее подчеркивания мои. – Д. Х.).

В очередном гротесковом отрывке перформативность „вытекает” из антиципативных конструкций (иллюстрирующих то, что ожидается произойти), которые в коммуникативном плане проявляются как комплекс различных речевых актов: афирмативов, декларативов, деонтивов (с различными модальными функторами) и проспективов (указывающих предстоящее, будущее

² Генрик

[...]

Я к ней близко подойду и... и что? И, например, коснусь ее...

Коснусь... вот этим пальцем... и это будет означать, что я взял ее в жены

и что она стала моей достойной, законной, верной, невинной и чистой супругой. Не нужны мне другие церемонии. Я самому себе сотворяю мои церемонии. А стоит мне ее коснуться, вы должны опуститься на колени и опусканием вашим на колени возвысить мое прикосновение до высот самой святой святости... до высот семейного обряда...

Посмейте только не опуститься на колени! Посмейте не освятить это вашим опусканием на колени!

А сейчас вперед, вперед, давай, давай, о, Генрик, Генрик, Генрик!

действие). Ситуативный оксиморон – убийство среди роскоши и великолепия, – „пропитан” удвоенной перформативностью: преступный характер запланированного акта размывается и теряется в пышной обстановке королевского приема и в слащавом вкусе „изысканных” манер, а кроме того, совершаемый сверху, т.е. пространственно защищенный посредством с верхнего направления действия, самыми высочайшими особами, вообще не подлежит ни оценке, ни комментарию. Это объясняет категоричность и намерения, и прогноза, который предварительно звучит как „выполненный приговор”.

Król

Tak, tak, ja w całym majestacie. Musi być dużo światła, dużo ludzi i dużo strojów... Blask, świetność... Z góry krzyknąć na nią, to ona się udławi... Na pewno. Udławi się na śmierć. A nikt się nie domyśli, bo zbyt głupie – i z góry, z góry, nie z dołu, z majestatem, z blaskiem. Z góry ją zabijemy³ (I, s. 69).

Проведенное исследование ведет к следующим результатам:

1) Коммуникативность гротеска как панорамная, чаще всего многофразовая и многофазовая текстуальная категория стимулируется и поддерживается спецификой самой коммуникации, покоящейся на понимании.

2) Гротеск играет решающую роль для преодоления исконной трудности в языке уловить скрытый прагматический смысл. Он обнаруживает этот смысл иллюстративно, образно, разворачивает „многосмыслие” смысла и поэтому столь полноценен в прагматическом отношении. Следовательно, гротеск не непонятен, он побуждает к пониманию, „руководит” пониманием.

3) Коммуникативная насыщенность гротеска и его яркая перформативность обусловлены в большой степени его эстетико-экспрессивным обликом. Сквозь призму гротеска экспрессивная функция языка становится ведущей. Наверно, от нее в большей степени зависит понимание. В этом смысле она является настоящей „репрезентативной” функцией языка.

4) Коммуникативная „консистенция” гротесковой образности, благодаря когерентно-гармоничной „дисгармонии”, доказывает ее существенную роль в процессах концептуализации, категоризации и реструктуризации мира.

³ Король

Да, да, я во всем своем величии. Должно быть много огней, много людей и много туалетов... Блеск, великолепии... Крикнуть ей с высоты, и она поперхнетя... Точно. Поперхнетя и умрет. И никто не догадается, слишком это глупо – и самое главное, чтоб было с высоты, сверху, сверху, не снизу, с величием, с блеском. Сверху ее уьем.

5) Гротеск, с одной стороны, отражает естественные трудности, сопутствующие пониманию в самом языке, а с другой, хоть частично их преодолевает, благодаря своей образной пластичности и экспрессивности. Таким образом он обгоняет язык по крайней мере на один шаг.

6) Язык вступает в роль „перформатора” по отношению к гротеску – словно учит его, что „делать” с ним, а гротеск, со своей стороны, реваншируется, обучая адресата, что „делать” и с ним, и с языком.

7) Генеральная иллюкативная цель автора гротеска, неразрывно связанная с семантикой его высказывания, доказывает и реализует свою перформативность, вызывая трансформацию в мышлении и поведении адресата.

Языковая и гротесковая коммуникативные структуры выдают удивительное сходство, раскрывающее перед наукой обещающие перспективы для новых исследований в различных направлениях, таких, как: представление о перформативности при гротеске как причине изменения настроения для языковой перформативности; изменение классического представления о коммуникации посредством зондирования и остальных комических категорий (иронии и пародии) и их роли в коммуникативно-речевом спектре гротеска, а также их взаимной коммуникативной интерференции; новый взгляд на языковые средства, не как на „музейные экспонаты”, „мертвые” знаки, а как на динамично-коммуникативные факторы; другие языковые модели как первооснова генерирования и восприятия гротесковости, как и обогащения функционального диапазона языка коммуникативным „многоголосием” гротеска; коммуникативная панорамность гротеска как стимул для рецепции, нашего когнитивного любопытства и врожденной нашей жажды знаний о мире.

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Eugene Krasnopevtsev,

*Novosibirsk State Technical University,
Professor, Doctor of Technical Sciences*

Tagyl – place of force of mountain on Altai

Евгений Краснопевцев,

*Новосибирский государственный
технический университет, профессор,
доктор технических наук*

Тагыл – место силы горы на Алтае

Встреча человека со священным объектом, наделенным силой, создает долговременную связь, формирует жизненные ценности, упорядочивает человеческий космос. Человека сопровождает невидимый помощник, проявляющийся в трудной ситуации. Проступок человека быстро наказывается, и эта взаимосвязь осознается, формируя мораль, основанную на принципе справедливости. Такие представления отражены ключевыми понятиями ведийского и авестийского умозрений: вед. *ṛtá* – «божественная истина», «космический закон», преобразующий хаос в упорядоченный космос; авест. *aša*, др.-перс. *arta* – «справедливость», «свет правды». *Ṛtá* определяет деяния богов и «карму» человека, она не видима смертным, ее хранят и воплощают грозный *Váruṇa* и милосердный *Mitrá*, образами которого являются солнце и огонь (RV V, 62–72), тогда «путь закона стал управляться лучами» (RV I, 136, 2). Авестийский *Míθra* воплощает «договор», «закономерность», выступает как бог солнца.

Природные места силы с их физическим воздействием [1], влияющим на судьбу человека, обнаруживали особо чувствительные люди с глубокой древности. Будучи почитаемыми, эти места воспроизводились и усиливались сменяющимися поколениями и этносами, они сохранились до настоящего времени в Горном Алтае. Практика, ориентированная на контакт со священными природными объектами, показала свою эффективность, вошла неотъемлемой частью в

основу сменяющихся культур – афанасьевской и каракольской (III тыс. до н.э.), скифской (VI–III вв. до н.э.), тюркской (VI–VIII вв. н.э.).

Гора с выделяющимся по красоте ландшафтом может содержать свидетельства отношения к ней как к священному объекту. Представление о родовой горе (алт. тӧс-таг – «гора основа», «предок») свойственно этносам Саяно-Алтая. Сношения с ней осуществлял, в частности, шаман, гора определяла его судьбу, была покровителем, у нее он получал указания по изготовлению бубна и разрешение на его использование. Священная сила горы локализована и сфокусирована ритуалами в месте, где находится алтарь-жертвенник, по-алт. тагыл, от тюрк. таг – «вершина», «гора».

Скифские «царские» курганы Алтая выстроены, как правило, цепочками по линии, близкой к направлению юг-север, и ориентированы на юг, на главную вершину родовой горы, которая отделена от курганов водным потоком. Эта гора сама входит в цепочку гор, вершины которых расположены близко к линии юг-север. Курганы и горы образуют почти периодические структуры, что создает некий резонанс мест силы. Старшие лица, захороненные в курганах южнее, «опекают» младших по старшинству и/или по возрасту, захороненных в курганах севернее [2], передавая им, а также живым поколениям и окружающей природе свой «фарн» – авест. *xʷarənah* («хварна») – носитель божественной благодати, восходящей к Солнцу [3]. Фарн изображался в виде огненного диска, барана, птицы. Трактовка фарна у скифов Причерноморья восходит к праиранской идеологии, развитой в Мидии в VII–VI вв. до н.э. Исторические источники описывают царскую гробницу как место, где находится фарн царя. Вблизи таких захоронений обычно расположены поселки. Согласно Геродоту (I, 215–216), массагеты, ведущие подобный скифскому образ жизни, почитали единственного бога – Солнце. С ним связаны культы огня и коня. Скифские курганы Алтая содержат захоронения коней, расположенные за северной стеной могильного сруба. В памятниках каракольской культуры изображения личин с лучами на голове олицетворяют солнечное божество в качестве духа-хозяина места, праматери, хранителя и дарителя душ, покровителя рода. В тюркской культуре Центральной Азии концепцию фарна сменила тюрк. кут (шаманское сус) – «душа», «жизненная сила», «божественная благодать», получаемая через солнечный или лунный луч

[4, с. 63]. По традиционным верованиям хакасов луч солнца (по хакас. сус) является проводником одной из составляющих зародыша кут, который возникает при рождении ребенка и является божественным светом его души.

«Одной из первоочередных задач научных исследований сакральных центров Алтая определен поиск скрытого смысла в структурах и графических, семантических, энерго-информационных конфигурациях курганных систем» [5]. С этой целью автором выполнен поиск гор, на которые ориентированы цепочки курганов, в долинах рек Каракол и Урсул Горного Алтая. Применялся метод космической археологии путем использования карт SAS Planet и изображений Google Earth. Такие горы обнаружены вблизи поселков Боочи, Кулада, Ело, Шибя, Талда, Туэкта. С целью поиска свидетельств священности этих гор проведены полевые исследования. В пяти местах обнаружены артефакты, подтвердившие выдвинутую гипотезу. Постоянно включенная портативная рация Vector VT-44H неожиданно зарегистрировала электромагнитную реакцию у двух объектов.

Гора Текпенек около поселка Боочи имеет четыре последовательно поднимающихся в южном направлении вершины, лежащих на одной линии (рис. 1). Две цепочки курганов, расположенные с северной стороны горы и отделенные от нее речкой Талдушкой, ориентированы на главную вершину высотой 1251 м. Оказалось, что на горе стрелка компаса отклоняется на $\sim 100^\circ$ к востоку от истинного направления на север. К востоку от вершины, на седловине между двумя скалами, обнаружен частично поврежденный тагыл, сложенный из плитняка в форме близкой к кубу с ребром ~ 120 см. Его параллельные грани направлены на главную вершину горы. Вблизи тагыла перестала работать рация в режиме передачи, режим приема функционировал без помех. При удалении от тагыла работа рации восстановилась.

Цепочка курганов у поселка Талда ориентирована на расположенную южнее гору высотой 1164 м. Река Урсул отделяет курганы от горы. В восточном направлении от вершины обнаружен тагыл в виде, близком к параллелепипеду, размером в плане 150 (167) см x 115 (105) см, высотой 125 (105) см, с неровной верхней поверхностью. Рация в режиме приема на частоте ~ 446 МГц, лежащая на земле на удалении ~ 3 м, начала периодически издавать щелчки при приближении автора к тагылу. У принимающей стороны в ~ 3 км помехи рации отсутство-

вали. Через минуту помехи прекратились. Звуковая форма щелчков близка ритуальным возгласам шамана при обращении к горе – «чок!», «чок!», «чок!» [6, с. 33].



Рис. 1. Гора Текпенек и тагыл

Культ горы сохраняется на Алтае до настоящего времени. На горе у въезда в поселок Кулада, на седловине с южной стороны от вершины, находится святилище, показанное на рис. 2. На концах крестообразной перекладины, установленной на мачте, прикреплены полотнища синего, белого, желтого и зеленого цветов. Перекладина свободно поворачивается при дуновении ветра. Тагылы сложены из каменных плит, взятых из главных гор Алтая. На верхней поверхности каждого тагыла находится место для разведения огня и плоская плита светлого цвета для бескровных жертвоприношений. Объединение главных гор воплощает всю природу в виде единого божества Алтая – источника и защитника жизни. Святилище является местом проведения ритуалов неошаманистического движения Ак-Яң – «белая вера», которое появилось в начале XX века.



Рис. 2. Святилище у поселка Кулада

Алтарь-жертвенник на горе свидетельствует о ее сакральном статусе и оправдывает ориентацию на гору цепочки курганов тех захороненных лиц, которые при жизни были связаны с этой горой, хотели навеки сохранить эту связь, обеспечивая благополучие своим потомкам. Алтарь располагается в юго-восточном секторе относительно главной вершины горы, в седловине, сообразуясь с рельефом, – в трех случаях к востоку, в двух – к югу от вершины. Сложенный из каменных плит в форме прямоугольного параллелепипеда, тагыл выделяет шесть взаимно перпендикулярных направлений – четыре ориентированы по сторонам света и к вершине горы, два к небу и земле. Тагыл сопоставим с западно-монгольским алтарем «индером», используемым для родовых жертвоприношений [7, 8]. По форме тагыл близок к зароастрийской «дахме», отличаясь меньшим размером, другими назначением и функцией.

Древний тагыл – это место силы горы и связанных с ней курганов, его активность непосредственно проявляется в психологическом воздействии и электромагнитных аномалиях. В одном случае приближение человека вызвало реакцию в виде импульсного повышения активности в радиодиапазоне УКВ, в другом случае отключился режим передачи радиосигнала. Следовательно, тагыл контролирует окружающее пространство и воздействует на него. Есть основание полагать, что на приблизившийся объект воздействие осуществляется не только в

кратковременном режиме. Тагыл является опасным для исследователя экологическим объектом, требующим к себе особого отношения, основанного на народных традициях.

Представление о духе-хозяине горы, как особой божественной природной сущности, существующее с древности у населения Саяно-Алтая, не является умозрительной категорией, но культурным осмыслением фактов, интерпретируемых народным мышлением как иерофания. Сформированные на подобной основе базисные элементы культуры, морали и религиозной практики – архетипы воспроизводились в сходном виде на протяжении тысячелетий, начиная с арийской общности, у разных этносов, обеспечивая им гармонию с природой и благополучие.

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Ekaterina Malysheva,
Tver State Agricultural Academy,
Candidate of Philological Sciences,
the Linguistic Theory and Intercultural
Communication Department

Tactile connection of nonverbal discourse

It is particularly important that the research such dialogue units which are able to be as linking elements of communicative replicas and provide semantic and pragmatic coherence and participate in "creating some the sequence of the individual components of the whole" [10], because today the problem of social interaction or correlation of actions of the initiator and the recipient in modern communicative world is very important.

At the same time it is important to emphasize that the interest modern researchers is reduced not only to units that can bind a replica of the author but also to act as a marker of replicas of different authors in verbal and in a complex verbal - tactile interaction [1; 2; 3; 4; 5; 6; 7; 8]. Generally among these units are all language means used in the process of communication to connect the parts of dialogue in the framework of complete formation - of text (unions, particles, pronouns, adverbs, etc.). But in the narrow sense considering the dialogue as the complex communicative process in which along with the verbal (speech) units nonverbal (sign language, tactile actions, etc.) elements play a very important role as units - connectors which are able to act not only as a typical connection of different components of any text but also as a means of contacting between the dialogue partners involved in the disclosure of the interactive nature of the agreed cooperation.

In such understanding of nonverbal connectors they realize units that can be connected dialogue replica and possess functional characteristics which are aimed at the disclosure of communicative-pragmatic specifics of complex interactive steps or chistras dialogue. According to demonstrative processing of nonverbal connectors they can be divided into simple and complex (composite). The category of simple nonverbal connectors (particularly tactile connectors) belong all tactile dialogue connect-

ors used in any communicative act once. The category of complex or composite connectors are ranked tactile connectors which form complex structures - integral communication chain and used in any communicative act several times.

In the same context it is appropriate to emphasize the fact that such complex connectors involved as some mediators characterizing and marking certain speech acts or specific complex verbal and tactile communicative acts in which verbal and tactile elements of dialogue are implemented simultaneously. This means that the recipient on an unconscious / intuitive stratum can determine the complex communicative act and thus predict an interaction without further communication failures and malfunctions.

In this case the dialogue control is not confined to the influence on the object in view of the aim but rather the process of impact would be transformed into the process of coordination of actions with the interlocutor. Therefore we can talk about tactile elements which use in verbal communication components act and consider as linking elements in the dialogue control.

The function of these tactile connectors is reduced especially in the part of the logical explication of complex interactions, to link the individual steps replicas and interactive dialogue partner. In this context the following main types of tactile connectors employees for control dialogue o represent such types: a) equivalence, b) sequence, c) reason, d) convention.

For example, *equivalence tactile connectors* connect two pieces of communicative reality in which the situation of the speech acts identically tactile component of the dialogue. The connection between the two elements of the dialogue is schematically as follows: equivalence (A, B). Such equivalence connectors are the most common. In practice you can see them in the ritual acts (greeting, farewell, thanks, and congratulations). The form of expression equivalence relations with these connectors is explicit. By tactile equivalence connectors are connectors such as: **to take a hand / an arm, to take by the arm / a hand, to kiss, to give a kiss / a hand, to shake / give handshake, to embrace, to kiss one`s cheek**, etc.

Sequence tactile connectors indicate replica several steps within a given fragment of discourse and they are as the basis of complex interactive steps of interlocutors. This type of communication can be represented as follows: sequence (A flows out B flows out C). Sequence tactile connectors can occur in all types of speech and communicative acts as communicants in the process of interaction may use an unlimited

number of tactile elements marking the space of verbal dialogue. To such connectors belong following connectors: **to give a hand, to embrace, to take by the arm, to held, to take hold, to put, to shake, to press**, etc.

Tactile connectors of the reason use for expression of depending of complex interactive step from another. The most typical verbal acts in which are involved such connectors are requestive, expositive and satisfactive acts [9]. Semantic relations, revealing the connection between two or more replicas complex will be as follows: REASON (A flows out B). The significance of this tactile connector is that at its participation form of different kinds of addictions and for the formation of these dependencies using the most different range of touch. The form of expression of cause can be both explicit and implicit. For tactile reasons connectors include such connectors: **to take, to kiss, to pat, to take by a hand / an arm**, etc.

Tactile conventions connectors are caused by the value of conditional relationship and they use in verbal acts of is most often found in speech acts requestive and satisfactive type. Thus we can say that there is a condition in which the recipient implements the new communicative action. Tactile connector in this case acts as the "effective / driving forces" by use of which is carried out further cooperation, i.e. a set of conclusions of the given steps will be as follows: **to put, to take, to pull, to press, to shake, to pat**, etc.

Thus tactile connectors as a means of communication builds cohesive unities represented in all types of logical types of communications. Such connectors are essential connectedness of dialogue replicas as their main role is to report on the "transition" thematic orientation of discursive steps, smoothing of communication failures and failures. However, speaking about the regulatory nature of the tactile connectors, it is worth emphasizing that their role is limited to the "cohesion" of successive interactive replicas of dialogue partners. It is important to take into account the reaction of the recipient for using this connector, because due to a possible further conditionality complex reciprocal step and selection, formation and development of tactics and strategies leading to communicative failure or coordinated interaction. Therefore, from this position tactile connectors can be used of dialogue partners, not only for the explication of a typical connection of separate fragments (discursive steps of communicative reality), but also to reveal interactional nature of social interaction.

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Mitova Olena,

*The Dnepropetrovsk State Institute of Physical
Culture and Sports, the Sport Games
Department, Head of Department*

***Analysis of computer technologies usage while
controlling different kinds of sportsmen's
preparedness in team sports***

Мітова Олена,

*Дніпропетровський державний інститут
фізичної культури і спорту, кафедра спортивних ігор,
завідувач кафедри*

***Аналіз застосування комп'ютерних технологій
у контролі різних видів підготовленості
спортсменів у командних ігрових видах спорту***

Постановка наукової проблеми і її значення. Сучасна система управління і контролю підготовки спортсменів повинна спиратися на методологію інтегративних підходів, а також на можливості суміжних дисциплін, яка дозволить забезпечити таку систематизацію знань, яка відрізнялася б функціональною повнотою та внутрішньою несуперечливістю. Принципово важливим моментом інтеграції знань при формуванні системи контролю підготовки спортсменів є наявність всього обсягу органічно взаємозалежних знань, необхідних тренеру в процесі управління підготовкою спортсменів [1].

Аналіз досліджень даної проблеми. В.М. Платоновим [2] у загальній теорії спорту відзначається, що ефективність процесу підготовки спортсмена в сучасних умовах в своїй більшості обумовлена використанням засобів та методів комплексного контролю як інструменту управління. Низкою авторів (В.М. Костюкевичем [3], Е.Ю. Дорошенко [1] та ін.) продовжено наукове обґрунтування комплексного контролю у командних спортивних іграх, яке в спортивній науці

традиційно розуміється як контроль різних сторін підготовленості спортсменів у їх взаємозв'язку на основі застосування сукупності інформативних уніфікованих параметрів і методів. Крім того, за останні роки надзвичайно нестримно та масштабно відбувається застосування комп'ютерних технологій у спорті [4]. Однак аналізу застосування комп'ютерних технологій у контролі різних видів підготовленості спортсменів в командних ігрових видах спорту та об'єднанню даних у цілісну систему знань присвячено недостатньо робіт, тому даний напрямок досліджень є актуальним для сучасного спорту.

Мета – здійснити аналіз застосування комп'ютерних технологій в контролі різних видів підготовленості спортсменів у командних ігрових видах спорту на основі наукових досліджень сучасних вчених.

Завдання:

1. Проаналізувати напрями контролю у командних ігрових видах спорту на основі науково-методичної літератури.

2. Проаналізувати використання комп'ютерних технологій у контролі різних видів підготовленості спортсменів у командних ігрових видах спорту на основі сучасних наукових досліджень вітчизняних та зарубіжних вчених.

Виклад основного матеріалу і обґрунтування отриманих результатів дослідження. В ході аналізу захищених дисертацій та наукових публікацій виявлено, що більшість з них прямо або опосередковано присвячені різним напрямкам системи контролю у командних ігрових видах спорту, таким як:

- контролю та управлінню підготовкою команд високої кваліфікації присвячені роботи (Г. Лісенчук, 2003; J. Bangsbo, B. Peitersen, 2004; В. Шамардін, 2013; Е. Дорошенко, 2014);

- оцінці, моделюванню та прогнозуванню (Р. Сушко, 2011; В. Губа, 2012; В. Костюкевич, 2012; С. Перцухов, 2013; В. Циганок, 2012; І. Стасюк, 2014);

- відбору та орієнтації й комплексній оцінці при відборі дітей до занять спортивними іграми (Л. Волков, 2004; А. Ніколич, Ю. Параносіч, 1990; В. Губа, С. Фомін, С. Чернов, 2009; М. Безмилов, 2010; Т. Павлова, 2011; О. Шинкарук, 2011-2015);

- контролю технічної підготовленості (Л.Б. Костикова, 2000-2012; Vuceta, M. Mondoni, A. Avakumovic, L. Killik, 2000; С. Журід, 2007; С. Коваль, 2010; Баррел Пайе, Патрик Пайе, 2008; А. Золотарев, 2009; Н. Кудяшев, 2011; J.M. M. Spencer, 2011; В. Матяш, 2013; В. Пасько, 2015);

- контролю спеціальних фізичних якостей спортсменів, що займаються спортивними іграми (А. Власов, 2004; В. Ніколаєнко, 2007; Н. Нестеренко, 2013; Муаяд Маклоуф, 2014);

- контролю психологічних особливостей, взаємовідносин в команді та соціального статусу гравців у командних спортивних іграх (М. Anshel, 1990; F. Carron, 1993; Бузнік, 2006; В.І. Воронова, 2007, С.Є. Шутова, 2000, Т.Г. Артеменко, 2010, М.Г. Самойлов, 2005-2014, Д. Казаков, 2014; О. Голець, 2014).

Проблемі застосування засобів інформаційних технологій в контролі різних видів підготовленості спортсменів у командних ігрових видах спорту також присвячено чисельну кількість досліджень.

Виявлено, що Супруновичем В.О. зі співавторами [5] на базі алгоритму методики "Balltest" розроблено автоматизовану комп'ютерну методику діагностики ігрового мислення футболістів "FootBallTest", до основи якої покладені конкретні ігрові ситуації та варіанти їх розв'язання. Базілевським А.Г. [6] розроблено авторську методику «BASKETTEST» для контролю і удосконалення тактичного мислення баскетболістів та способи визначення тактичної підготовленості й рівня розвитку спеціальної рухової підготовленості.

Б.О. Артеменком та І.Д. Глазиріним [7] було створено інтерактивну методику для контролю тактичного мислення волейболістів "Volleyball-Test", яка у своїй основі має три блоки: тестування тактичного мислення у нападі; тестування тактичного мислення у захисті; навчання тактиці захисту, що дає можливість тренеру за лічені хвилини отримати інформацію про стан розвитку тактичного мислення гравців. Пасько В. науково обґрунтовано застосування комп'ютерних технологій у процесі розвитку та контролю тактичного мислення у регбістів [4].

Дмор Саммер М.М. [8] експериментально обґрунтовано методику навчання молодших школярів футболу з використанням інформаційних технологій, яка передбачає діагностику рівня здоров'я, фіксацію антропометричних і функціональних показників, тестування фізичної, технічної та психофізіологічної підготовленості, виконання розроблених річних програм навантажень, опанування інформації у комп'ютерному класі у рекомендованих часових межах.

Для тестування юних футболістів групою авторів Дж.С. Гугушвили, Д.А. Киркитадзе, А.Э. Егоян та ін. [9] розроблено комп'ютерну програму, яка дозволяє виявити та оцінити параметри, що характеризують навички юних футбо-

лістів засобами обчислення часового інтервалу необхідного футболістові для виконання різних тестів: від найпростіших тестів на реакцію до складних з включенням логічних завдань.

І.М.Собко, Ж.Л. Козіною, Л.В. Щедривою [10] розроблено та експериментально обґрунтовано спосіб управління тренувальним процесом спортсменів-ігровиків з вадами слуху на основі застосування інноваційних технологій в тренувальному процесі, які дозволяють вдосконалювати та контролювати рівень спеціальної фізичної, техніко-тактичної підготовленості та здійснювати детальний контроль ефективності ігрових дій.

Крім того, одним з найбільш популярних методів контролю змагальної діяльності у командах високої кваліфікації є застосування спеціально розроблених комп'ютерних програм (Data Volley – волейбол, SmatStat, Fiba-LiveStats – баскетбол та ін.), які є швидкими у переробці інформації та зручними для тренерів й науковців.

Авторами Сушко Р.О., Дорошенко Е.Ю. [11] розроблено модифікований спосіб оцінювання техніко-тактичної майстерності в баскетболі, підґрунтям якого стало завдання оцінити ефективність техніко-тактичних дій у баскетболі шляхом реєстрування результативних передач, підбирань м'яча під щитом, перехоплень м'яча, блок-шотів, фолів суперника на гравцеві, втрат м'яча, фолів гравця, розрахунку співвідношення кількості набраних гравцем очок до кількості очок, яку набрала команда, співвідношення кількості результативних кидків м'яча в корзину до загальної кількості кидків того ж гравця, співвідношення часу перебування гравця на майданчику до загального часу гри, що дозволяє підвищити точність та об'єктивність оцінки рівня техніко-тактичної майстерності гравця у баскетболі.

Висновки

1. В ході аналізу наукових праць виявлено напрями та характерні ознаки, які повинні підпадати під контроль у командних спортивних іграх, з урахуванням вікових відмінностей й залежно від ігрового амплуа, є: показники техніко-тактичних дій під час змагальної діяльності; рухова діяльність протягом гри (кількість переміщень, стрибків, прискорень та ін.); рівень технічної, фізичної (загальної та спеціальної), тактичної, теоретичної, психологічної видів підготовленості; обсяг та інтенсивність тренувального та змагального навантаження; рівень взаємовідносин та соціального статусу гравців в команді; особливості жіночого організму;

антропометричні показники фізичного розвитку; стан функціональних систем; психофізіологічні особливості.

2. Виявлено, що за останні роки відмічена велика кількість напрямів по впровадженню та використанню засобів сучасних інформаційно-комп'ютерних технологій в контролі різних видів підготовленості спортсменів у командних ігрових видах спорту, але даний масив знань не об'єднано у цілісну систему знань.

Перспективи подальших досліджень полягають в тому, щоб на основі теоретичного аналізу та експериментальних досліджень сформуванати цілісну систему знань щодо контролю в командних спортивних іграх для оптимізації управління процесом багаторічної підготовки.

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Nikitin Aleksandr Vsevolodovitch,
*Nyzhny Novgorod Law Academy,
Department of Theory and History of the State and Law,
Head of the Department,
Pronina Elena Nikolaevna,
*Volga State University of Water Transport,
Associated Professor of the State and Law Disciplines Department,
Candidate of Law**

The problems of the practical use of trademarks in the Russian Federation

Abstract: In the article the analysis of judicial practice on civil cases related to the protection of trademark rights. Examples of the most common litigation will help rights holders to understand the subject and scope of the requirements they may submit to the violators of their intellectual property rights.

Keywords: legal symbol; trademark; "the right of prior use"; the effectiveness of the use of the trademark.

Никитин Александр Всеволодович,
*Нижегородская правовая академия,
заведующий кафедрой теории и истории государства и права,
Пронина Елена Николаевна,
*Волжский государственный университет водного транспорта,
доцент кафедры государственно-правовых дисциплин,
кандидат юридических наук**

Проблемы практического использования товарных знаков в Российской Федерации

Аннотация: В статье предлагается анализ судебной практики по рассмотрению гражданских дел, связанных с охраной прав на товарные знаки. Примеры

наиболее часто встречающихся судебных споров помогут правообладателям разобраться в предмете и объеме требований, которые они вправе предъявить к нарушителям их интеллектуальных прав.

Ключевые слова: правовой символ; товарный знак; «право преждепользования»; эффективность использования товарного знака.

Введение

Разработанность общих вопросов эффективности права достигла в настоящее время такого уровня, при котором, в соответствии с потребностями общественной жизни, вполне своевременным и необходимым представляется изучение эффективности правовых символов. Без этого в ряде случаев невозможно выработать научно обоснованные рекомендации по их совершенствованию.

Цель работы

Цель статьи заключается в том, чтобы проанализировать применение товарных знаков как разновидности правовых символов с учетом тех правовых отношений, которые складываются в настоящее время в сфере предпринимательской деятельности. Изучение эффективности товарных знаков носит прикладной характер, но одновременно имеет немалое теоретическое значение.

Прикладной характер проблемы состоит в том, что исследование проводится для выяснения того, в какой мере достигаются цели использования товарных знаков, какие этапы правоприменения в области интеллектуальной собственности желательно усовершенствовать.

Теоретический аспект заключается в том, что успешная разработка проблемы повышения эффективности товарных знаков как правовых символов связана с выявлением исторических, социально-юридических и экономических факторов, влияющих на эффективность использования товарных знаков.

Материалы и методы

Теоретической основой исследования послужили публикации в области теории правового символа.

Эмпирической основой исследования послужило законодательство Российской Федерации о товарных знаках и практика его применения.

При проведении исследования использовался комплекс научных методов: системный, функциональный, сравнительный, формально-юридический и другие.

Результаты и обсуждение

Товарный знак можно рассматривать как олицетворение модели ведения бизнеса, как основную компоненту коммерческого бренда в целом. Но, прежде всего, товарный знак – это некое обозначение, служащее для индивидуализации товаров, выполняемых работ или оказываемых услуг, используемое в следующих формах [1]:

- на товарах, этикетках, упаковках этих товаров, которые производятся, предлагаются к продаже, продаются, демонстрируются на выставках и ярмарках или иным образом вводятся в гражданский оборот на территории Российской Федерации либо хранятся и (или) перевозятся с этой целью, либо ввозятся на территорию Российской Федерации;

- при выполнении работ, оказании услуг;

- на документации, связанной с введением товаров в гражданский оборот, в частности, в таможенной декларации;

- в предложениях о продаже товаров в сети Интернет, в частности, в доменном имени и при других способах адресации.

В качестве товарных знаков могут быть зарегистрированы словесные, изобразительные, объемные и другие обозначения или их комбинации. Товарный знак может быть зарегистрирован в любом цвете или цветовом сочетании. При этом символ должен быть таким, чтобы его нельзя было спутать с ранее зарегистрированным брендом.

По мнению автора, основными признаками, позволяющими отнести товарные знаки к категории правовых символов, являются их юридическая форма закрепления и особый порядок учреждения и использования: а) закрепление в законе или ином юридическом документе визуального описания внешнего вида товарного знака и требуемых символических (ритуальных) действий по отношению к определенному виду товаров или услуг; б) регистрация товарного знака и его включение в таможенный реестр объектов интеллектуальной собственности.

Товарные знаки в настоящее время являются популярным атрибутом предпринимательской деятельности как в России, так и во всем мире. Очевидно, этим обстоятельством обусловлен и тот факт, что нарушения и злоупотребления в этой области не редкость.

Именно стойкая тенденция к увеличению исков, связанных с защитой интеллектуальных прав, показала необходимость создания отдельного судебного

органа, специализирующегося исключительно на рассмотрении таких споров – Суда по интеллектуальным правам (СИП) [2].

Правообладатели товарных знаков сталкиваются с рядом проблем. Например, товарный знак может незаконно использоваться в подписи при переписке или же в тексте договора и финансовых документов при реализации товаров. А закон позволяет предъявить требования об удалении товарного знака с документации, рекламы и вывесок только в отношении выполняемых работ или оказываемых услуг.

Другой пример связан с действующим в России принципом исчерпания прав на товарный знак, который породил огромное количество споров о параллельном импорте, когда оригинальный (подлинный) товар ввозится в Российскую Федерацию (Таможенный союз) неофициальными дилерами без согласия правообладателя. Подобное злоупотребление правом со стороны дилеров должно приводить к административной ответственности последних. Когда суды рассматривают дела о привлечении лиц к ответственности за использование обозначения, сходного с товарным знаком до степени смешения, они учитывают оценку сходства со стороны потребителя [3]. Причем для того, чтобы суд признал сходство, достаточно наличия самой опасности, а не реального смешения товарных знаков в глазах потребителя.

В ряде случаев использование товарного знака не считается незаконным, когда организация покупает товары у официального дистрибьютора и реализует их самостоятельно. Такие товары не являются контрафактными и торговая организация вправе размещать на своем здании или внутри него рекламу с товарным знаком официального дистрибьютора, что будет свидетельствовать о том, что в данном магазине реализуются оригинальные товары данного официального дистрибьютора [4].

В ряде случаев регистрация спорного товарного знака, идентичного широко известному товарному знаку в отношении товаров другого класса МКТУ (Международного классификатора товаров и услуг), может быть направлена на получение необоснованного преимущества за счет использования сложившейся деловой репутации известного мирового бренда. Такая ситуация создает угрозу возникновения заблуждения у потребителя относительно товара или его изготовителя [5]. Более того, из содержания Парижской конвенции по охране промышленной собственности [6] следует, что одним из основных направлений правовой

защиты товарных знаков является защита от недобросовестной конкуренции. При этом согласно ст. 10 Парижской конвенции актом недобросовестной конкуренции считается всякий акт конкуренции, противоречащий честным обычаям в промышленных и торговых делах. В силу этой же конвенции подлежат запрету все действия, способные каким бы то ни было способом вызвать смешение в отношении предприятия, продуктов или промышленной, или торговой деятельности конкурента.

Учитывая структуру товарного знака как юридического символа (знак и передаваемое им значение), эффективность его применения напрямую зависит от норм права, которые определяют содержательную сторону юридического символа. Выявление эффективности использования товарных знаков предполагает выяснение характеристик их форм и выражаемого ими юридического содержания.

В последнее время из-за быстрого увеличения количества товарных знаков их рекламная (коммерческая) функция стала заметно уступать требованиям охраноспособности (правовым нормам), поэтому поиск и разработка новых обозначений, удовлетворяющих как коммерческой цели, так и правовым нормам, представляют собой исключительно важную проблему. На практике товарные знаки зачастую создаются на основе интуиции, а не научных методов. Это обусловлено тем, что, находясь под воздействием культурных традиций, национального менталитета, языковых и исторических факторов, человек стремится использовать уже сложившуюся (общепринятую) систему символов. В результате число товарных знаков, символизирующих в основном одинаковые или схожие предметы, непрерывно растет. Еще большие трудности в выборе охраноспособных символов возникают, когда правовую защиту нового обозначения приходится обеспечивать не в одной, а во многих странах.

На практике довольно часто встречаются случаи, когда малоизвестные компании-производители различных товаров пытаются заработать на популярности всемирно известных товарных знаков. Поскольку закон не запрещает регистрировать тождественные или сходные товарные знаки в отношении формально неоднородных товаров, некоторые недобросовестные компании пользуются этим. По одному из таких случаев всемирно известный производитель часов – швейцарская компания «Vacheron Constantin S.A.» и владеющая ею

«Richemont International S.A.» вынуждены были обращаться за защитой своего бренда в суд Российской Федерации.

Правовой конфликт возник по следующим обстоятельствам. Компания «Ричмонт Интернэшнл С.А.» является владельцем товарного знака «VACHERON CONSTANTIN» по международной регистрации № 436637 с приоритетом от 12.01.1978. Правовая охрана данного товарного знака действует и на территории России в отношении 14 класса МКТУ, в том числе, в отношении часов и ювелирных изделий. История продукции, выпускаемой под товарным знаком «VACHERON CONSTANTIN», насчитывает более 250 лет, а сам товарный знак зарегистрирован на территории 67 стран мира и является одним из знаков, обладающих репутацией во всем мире.

В 2004 году Роспатент зарегистрировал всемирно известный товарный знак «VACHERON CONSTANTIN» в отношении одежды на имя компании «Риттер-Джентельмен». Впоследствии права на товарный знак были уступлены оффшорной компании «Тессир Партнерс ЛТД». Данное обстоятельство послужило основанием для обращения компании «Ричмонт Интернешнл С.А.» и ее дочерней компании «Вашерон Константин С.А.» в Палату по патентным спорам Роспатента с возражением против предоставления правовой охраны товарному знаку «VACHERON CONSTANTIN». Однако решением Роспатента и арбитражными судами в трех инстанциях в удовлетворении требований компании «Ричмонт Интернешнл С.А.» было отказано.

Судами был сделан вывод о том, что оспариваемый товарный знак «VACHERON CONSTANTIN» зарегистрирован в отношении 25 класса МКТУ [7] (одежда), в то время как товарный знак «VACHERON CONSTANTIN», принадлежащий компании «Ричмонт Интернешнл С.А.», зарегистрирован в отношении 14 класса МКТУ (часы, хронометры и другие аналогичные им и предназначенные для них изделия), в связи с чем потребитель не вводится и не может вводиться в заблуждение оспариваемой регистрацией. Компании «Ричмонт Интернешнл С.А.» и «Вашерон Константин С.А.» в надзорной инстанции настаивали на необходимости оценки однородности товаров не только путем формального отнесения тех или иных товаров к классам МКТУ, но и через призму п. 14.4.3 Правил составления, подачи и рассмотрения заявки на регистрацию товарного знака и знака обслуживания, утвержденных Приказом Роспатента от 05.03.2003 № 32. При этом в качестве основополагающего принципа определения однородности

товаров было указано на возможность возникновения у потребителя представления о принадлежности этих товаров одному производителю. Президиумом ВАС РФ было указано на то, что охрана товарного знака распространяется не только на те объекты, которые он обозначает, но и на однородные, не упомянутые в охранном документе. Однородность должна признаваться по факту, если товары по причине их природы или назначения могут быть отнесены потребителями к одному и тому же источнику происхождения [8].

Сегодня не утихают споры и о советских товарных знаках. Правообладатели подают иски о защите нарушенных прав на свои товарные знаки. Конкуренты правообладателей (часто те же нарушители) пытаются оспаривать предоставление правовой охраны товарным знакам правообладателей. Используя законодательство о защите конкуренции, они стараются добиться признания актами недобросовестной конкуренции закрепление исключительных прав на советские товарные знаки за правообладателем. А в отдельных случаях в качестве акта недобросовестной конкуренции преподносится отказ правообладателя от заключения лицензионного договора на использование товарного знака. Несмотря на разную материально-правовую природу таких споров, в любом из них особую роль играет такая характеристика советских товарных знаков, как различительная способность. Именно особенности различительной способности советских товарных знаков часто определяют исход судебных споров и обоснование судом своей позиции в делах о нарушении прав на такие товарные знаки.

Исторический аспект различительной способности советских товарных знаков используется для обоснования предлагаемых время от времени (и заслуженно подвергающихся резкой критике) новелл о «праве преждепользования» [9] в отношении советских товарных знаков, которое надо предоставить правопреемникам старых советских предприятий.

Долгая история советских товарных знаков, их особенная различительная способность на практике привели к возникновению у этих знаков ряда отличительных черт. В частности, словесные элементы этих знаков обладают усиленной различительной способностью. Поэтому для преодоления сходства с советскими знаками требуются гораздо более значительные отличия, чем в случаях с иными товарными знаками.

Эти черты существенно влияют на позицию судов в спорах о нарушении прав на советские товарные знаки. В таких спорах ключевым вопросом является

сходство или несходство спорного обозначения с товарным знаком истца. В практике довольно часто встречаются случаи, когда сравниваются два комбинированных обозначения с одинаковыми или близкими словесными элементами или словесное обозначение сравнивается с комбинированным (при совпадении или близости словесных элементов). При этом суды приходят к выводу об отсутствии сходства между объектами сравнения из-за того, что семантическое и фонетическое сходство словесных элементов нивелируется дополнительными изобразительными элементами, оригинальным цветовым сочетанием, шрифтами и т. п.

В случае же с советскими товарными знаками подход несколько иной. Названия советских товаров так долго на слуху, что даже значительно отличающиеся вариации вызывают в сознании потребителей ассоциации с советскими товарными знаками [10]. Никакие добавления дополнительных рисунков, изменение фона, цвета, формы традиционной упаковки не помогают. При наличии близкого смысла словесных элементов, близких ассоциаций тут же возникает сходство с советскими товарными знаками, которые обладают усиленной узнаваемостью.

Приведем несколько примеров из практики (примеры взяты не только из споров о нарушении права на товарные знаки, но и из других дел, в рамках которых анализировались вопросы сходства советских товарных знаков с какими-либо обозначениями).

Так, были признаны сходными словесный товарный знак «Ласточка» и комбинированное обозначение «Ласточка-певунья», несмотря на очень значительные отличия и в фонетике, и в изобразительных элементах. Комментируя этот вывод, ВАС РФ подчеркнул, что товарные знаки общества «Рот Фронт» обладают существенной различительной способностью, ими маркированы одни из наиболее популярных конфет в России. На усиление различительной способности данных товарных знаков влияет длительность их использования на товарном рынке России [11].

Были признаны сходными словесный товарный знак «Кара-Кум» и комбинированное обозначение «Карабум», несмотря на значительное количество дополнительных изобразительных элементов в комбинированном обозначении.

Более того, даже в случаях, когда речь идет об аббревиатурах (обозначениях), различительная способность которых заведомо ослаблена, если вообще

существует), суды указывают на их способность порождать ассоциации с советскими обозначениями.

В частности, рассматривая спор об использовании аббревиатуры «КС», суд указал, что оно ассоциируется у людей с хоккейной командой «Крылья Советов». Эта аббревиатура стала узнаваемой вследствие длительного использования данной хоккейной командой, которая была основана в 1947 году [12].

В силу особенностей формирования различительной способности советских товарных знаков они прочно ассоциируются в сознании потребителей не только с конкретным производителем, но также и со свойствами и неизменным вкусом товара. Современным товарным знакам это свойственно характерны в значительно меньшей степени. Например, под одним названием часто выпускается целая линейка изделий (йогурты с самыми разными наполнителями и вкусами, разные варианты конфет с разными начинками и с разными видами шоколада). Советские же товарные знаки почти всегда прочно связаны в сознании потребителей с совершенно определенным видом, вкусом и ингредиентами изделия. Допустим, торт «Прага» не может быть с белым шоколадом, а конфеты «Золотой ключик» не могут быть шоколадными. При попытках «расширительного» использования названия традиционных изделий может произойти утрата доверия к самому советскому товарному знаку, восприятие продукции с иными характеристиками как «не такой», «не настоящей».

Стоит также отметить такой феномен, относящийся к использованию советских товарных знаков, как возникновение «комплексной» различительной способности. При этом выбор потребителя определяется сочетанием товарного знака производителя (в виде имени предприятия) и товарного знака, являющегося названием товара. Например, шоколад «Аленка» покупатель воспринимает как продукцию кондитерской фабрики «Красный Октябрь». Если вдруг появится шоколад «Аленка» в точно такой же упаковке, но, допустим, условной Владивостокской кондитерской фабрики, то едва ли такая продукция вызовет доверие у потребителей. Скорее она будет восприниматься как имитация «настоящей Аленки».

Несмотря на то, что большинство советских товарных знаков уже более 20 лет принадлежит одним и тем же правообладателям, которые вкладывают усилия и средства в поддержание их репутации, именно в отношении этих знаков

предпринимаются постоянные попытки поставить вопрос о законности исключительных прав на них в принципе.

Одним из ярких примеров этого явления может служить спор по поводу товарных знаков «Янтарь» и «Дружба». Суть данного спора сводилась к тому, что ОАО «Кропоткинский молочный комбинат» обратилось к ЗАО «Карат» с предложением о заключении лицензионного договора на использование товарных знаков «Янтарь» и «Дружба». ЗАО «Карат» отказалось заключить договор. УФАС по Краснодарскому краю признало действия ЗАО «Карат» по приобретению прав на товарные знаки «Янтарь» и «Дружба», а также по отказу в заключении лицензионного договора актом недобросовестной конкуренции. ФАС Северо-Кавказского округа подтвердил позицию УФАС по Краснодарскому краю [13]. Одним из ключевых обстоятельств дела, послуживших основанием для указанных выводов суда, было то, что ОАО «Кропоткинский молочный комбинат» выпускал сыры «Янтарь» и «Дружба» с 1967 года.

В рамках данного дела судом была сформулирована позиция, последствием применения которой может стать нарушение основных принципов охраны интеллектуальной собственности (в частности, принципа исключительности прав правообладателя товарного знака). Фактически в рамках данного дела незаконным признали право правообладателя на свободный выбор лицензиата. Хотя в законе отсутствует обязанность заключать лицензионные договоры, основываясь на факте «преждепользования» товарного знака. Свобода договора и охрана исключительных прав правообладателя – базовые принципы гражданского права. Представляется, что позиция суда в описанном деле противоречит им.

Выводы

По мнению автора статьи, законодательное закрепление права преждепользования в отношении советских товарных знаков противоречит как нормам российского гражданского права, так и международным обязательствам РФ. Оно направлено на предоставление особых преимуществ российским юридическим лицам, что несколько расходится с главными принципами Парижской конвенции по охране промышленной собственности. Потенциальный лицензиат может принудить правообладателя к заключению лицензионного соглашения через суд, что может рассматриваться как нарушение запрета на принудительные лицензии (ст. 21 Соглашения по торговым аспектам прав интеллектуальной собственности (ТРИПС/TRIPS)) [14].

Законодательное закрепление права преждепользования в отношении советских товарных знаков вступает в противоречие с самой сутью интеллектуальной собственности, которую как раз и составляют исключительные права правообладателя. Никто другой не может без разрешения правообладателя использовать соответствующий товарный знак. Законодателями же предлагается установить изъятие из этого принципа. При этом бремя собственности (расходы на поддержание репутации знака, на рекламу, на обеспечение стандартов качества продукции) уже 20 лет как несет правообладатель. На момент регистрации прав на товарный знак его ни о каких изъятиях из исключительных прав не предупреждали. Правообладатель столкнется с тем, что созданная серьезными усилиями ценность товарного знака может быть довольно быстро утрачена из-за появления продукции под его товарным знаком, качество которой он не может контролировать.

Расчет только на правоприменительную практику при недостаточной изученности правовой сущности товарных знаков как правовых символов автор статьи признает неэффективным в первую очередь с коммерческой точки зрения. Автор видит необходимость применения научного анализа.

Системный подход предполагает, что уже на первых этапах создания товарного знака организации следует тщательно изучить реестры тех стран, в рынках которых она заинтересована, чтобы выяснить, какие элементы, отобранные для включения в новые обозначения, встречаются в уже существующих (зарегистрированных) товарных знаках. После этого станет ясно, пригодны ли эти элементы для дальнейшей обработки, и на каких рисунках и словах надо сосредоточить усилия.

Расширение международных политических и экономических связей обуславливает необходимость при создании внутригосударственных правовых символов в обязательном порядке учитывать требования международной правовой практики в этой области. Игнорирование этих требований способствует снижению эффективности действия товарных знаков как юридических символов. Чтобы каким то образом способствовать решению данной проблемы, предлагается учредить при Государственной герольдии официальное издание, в котором бы публиковались нормативные материалы по вопросам эффективности использования правовых символов, международный опыт в области товарных знаков т.п.

Проблема эффективности применения товарных знаков как правовых символов напрямую связана с качеством правоприменительной деятельности, а точнее – с качеством оформления, регистрации, использования, учета товарных знаков. В первую очередь они должны обладать высокой степенью охраноспособности, защищенностью от контрафакции. Отсутствие жесткой регламентации в этой области правовой жизни приводит к причинению значительного ущерба, как правам отдельных граждан, так и государству в целом.

Закрепление того или иного символа в нормативно-правовом акте значительно повышает его действенность, поскольку гарантируется возможность воздействовать на поведение людей не только на чувственном (иррациональном) уровне, но и на идеологическом (рациональном) уровне. Но не следует это положение абсолютизировать, поскольку правовое оформление символов, взятое в отрыве от экономических, политических, исторических, культурных и иных факторов, само по себе не может создать необходимых условий желательного и необходимого для общества и государства вариантов поведения.

Перспективы дальнейших исследований в данном направлении

Представляется целесообразным продолжить изучение условий и факторов, которые оказывают позитивное и негативное влияние на эффективность использования товарных знаков в предпринимательской деятельности и степень их охраноспособности.

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обладателя от выдачи лицензии такое российское юридическое лицо вправе обратиться в суд с требованием о выдаче лицензии и возмещении убытков, вызванных необоснованной задержкой в ее выдаче....» (Законопроект № 444256-6 «О внесении изменений в статью 1484 части четвертой Гражданского кодекса Российской Федерации» // Правовая система Консультант плюс. Режим доступа: <http://www.consultant.ru/>).

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Stepanskaya Tamara Mikhailovna,

Altai State University,

Head of the Department of History of Domestic Art and Foreign Art,

Doctor of Arts

To the question of interpretation of a musical work in higher education

In the modern period of development of higher education in the forefront is the process of updating the content and methods of teaching students. These processes touched the training of future specialists in the field of music education.

Improving the musical training of future specialists is to develop professional competencies of students—instrumentalist, one of the leading components of which is the development of performance skills. The need for a comprehensive study of issues of musical performance to date is apparent.

Pianistic execution includes the intended content of the artist, aesthetic principles, understanding of various styles, composers, individual works. Musical performance is a valuable synthesis of the observance of the details of the author's text and my own relationship to them. When interpreting musical works required by a different power of the creative imagination, rather than only when reproduction since it is necessary not only to understand a piece of music, but also to introduce it to a new level.

Feinberg argued that performers often overestimate natural beginning in art. There is no doubt that a number of points of interpretation can and should be thought out, refined and subdued to a certain plan. These include: building a dynamic plan, clarifying those points in the essay that will be highlighted or shaded, different colors for the voters, individual builds, and much more. The plan should be in close accordance with the content of the work, with the character of the era in which it's written, and fully to identify the main aesthetic aspirations of the performer. Great performance unnatural strength of feeling of the author's thought. The meaning of the work becomes personally visible and tangible. On this path of truthful disclosure of the contents of the product can also be discerned and all the advantages of artist his skill, knowledge of sound colors, rhythmic breathing, lyrical unique beginning, which is the secret charm big by [1].

Refer to yet another outstanding German teacher-pianist K. A. Martinsen. In his work "the Methods of teaching playing the piano" he argues that the artist must search for new one must search the truth, the truth of the expression, but look for yourself, not being afraid of new, then new will be found in itself. At present, the creative approach is new not only in the preparatory homework, in the process of prior reflection interpretation it is born and in concert — sometimes forced by the circumstances "device", sometimes as a free rise fantasy. This is evidenced by the experience not only brilliant artists, like Liszt, Rubinstein, ysaÿe, Busoni, and a number of performers on a smaller scale [2].

Interpretation involves an individual approach to the performed music, whether the performer's own creative concept of the incarnation of the author's intention, taking into account the specificity of the historical era in which it was created work, its genre characteristics, national traits of the Outlook of the composer, the nature of the use of expressive means of music. Musician-performer is constantly faced with a stylistic problem of interpretation, because the ratio of works and styles of performance associated with difficulties that cannot be resolved only at the level of General aesthetic.

In this respect, interesting studies D. A. Dyatlov. His dissertation continues the line of research associated with the formation of a coherent system of interpretation. The work reveals the problems of style in the performing interpretation of musical works. This is the historical context of the creation and performance of works, performing specific tasks for the detection of features of style in an executable paper, as well as the dialectical relationship between historical style, musical language and artistic symbol [3].

For example, Tchaikovsky in interpretation were identified, primarily "the maturity of artistic thought" by and demanded from him not only the existence of taste, sense of style, certain skills creative thinking, but also specific, in-depth knowledge of aesthetic terms, musical performance. If you try to decrypt these "conditions", Tchaikovsky attributed the following: "identification of moral strength and beauty" essay, which is the first task of the interpreter the ability by right "to unravel the essential features of the image" works "movement character", "spring drama, that is to be a kind of "music psychologist" the necessity of "the virtuoso vein", which is the essence of magic to the audience", specific "virtuoso of style" as an indispensable quality "of instrumentalnoy", by deducing beyond the commonness, the triviality in the region unusual, special, bright individual [4].

From the foregoing, it should be noted that the interpretation involves an individual approach to the music you're playing, active attitude, presence of the performer's own creative concept of the incarnation of the author's intention. Along with this, the interpretation of a musical composition also depends on the individual characteristics of the singer, in particular on the level of skill of the instrumentalist, his psychophysiological qualities of the person.

It should be noted that the solution of many problems of improvement of professional skill of the pianist contributes a comparative analysis of different performance interpretations of musical works. In the process of learning it is important that students are systematically acquainted with the new, most interesting interpretations of hearing and seeing this purpose audio and video recording, given the fact that every musical recording is, to some extent, approximate in fully the intent of the author is not amenable to recording, namely the shades of intonation. Therefore, it is necessary to watch performances by professional musicians.

For by the ability to correctly and precisely read the musical text, to understand all its minute detail and to understand their role in shaping the work as a whole is the key to good performance. Pointing to the need to strive for the most accurate reproduction of what is written by the composer, Alexander Borisovich stressed that the executor in this case should not be afraid of losing their own creative originality and individual traits of his interpretation of the works.

It should be emphasized that he strongly objected to the characters appearances and personality in the interpretation of the works based on a superficial, ill-considered attitude to the work, often resulting from insufficient understanding of musical text and content of a musical composition [1].

Thus, we consider justified the opinion of musicologists that the final course of the student-artist needs to be discipline “Interpretation of pieces of music”, preceded by such disciplines as musical improvisation, history of musical styles, theory and methodology of analysis, the history of the instrument and performance.

The possibility of choosing at all levels and in all directions of the analytical work of the musician is the degree of interpretive freedom, which elevates craft to art, creativity provides a qualitatively new result of the artistic activities of a performing musician.

Awareness of musical performance as an important component of future professional activity contributes to the formation of the necessary knowledge and skills to

create a positive attitude that helps further professional development. Performing development works of musical art, bears the features of its various functions: informative, educational, predictive, evaluative, hedonistic, heuristic, communicative.

Thus, the versatility of artistic work of the student in the process of interpreting a musical piece in piano class provides the opportunity to develop interest in musical performing activities, the formation of performance skills of students.

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Mergaliev Daniar Mergalievich,

Pavlodar State University,

Head of the Department of Performing Arts

To the question about folk art the Kazakh people

The history of Kazakh music has evolved over a long period of time. The latest research of musical instruments, epic, ritual, lyrical music of past centuries played a crucial role in the reconstruction of historical paths of development of musical culture of the Kazakh people.

At the same time we cannot deny the enormous importance of works of Russian pre-revolutionary, foreign ethnographers and travellers, in which they addressed the issues of Kazakh music. Their statements about the Kazakh singers, the instrumentalists, the place occupied by music in the life of Kazakhs to this day has not lost its scientific value.

Fair presentation of the chronological range of existence of musical art of modern musicology receives through data archaeology, which show that the musical culture on the territory of Central Asia and Kazakhstan had its roots in the most remote times. This is evidenced by the extant ancient petroglyphs playing music and dancing human figures. Especially a lot of monuments of musical culture belongs to the 1st Millennium BC — the time of existence of the ancient States of Khorezm, Bactria and Parthia.

Bright flourishing of the musical culture of Central Asia was reached during the period of Muslim Renaissance, when along with performing arts is evolving musical-theoretical thought is superior for a long time the Western Europe. This time brings music theorists such as Al-Farabi, Ibn Sina, Safi al-DIN, Abu-al-Qadir.

Being the followers of the Greek philosophy, these scientists have managed to rise to a new theoretical level of achievement of their predecessor, furthering mathematical research methods, which was considered the only true in the study of musical language.

Exploring the way of addition and development of the Kazakh musical folklore as part of the whole Central Asian musical culture, we must not forget that the Kazakhs are the direct heirs of those ethno-cultural groups, whose lives must also consider the

lifestyle of the people. Being in constant motion, crossing great distances full of unexpected obstacles that the people had accordingly organized his social life. The conditions of nomadism has formed a peculiar, tribal, and larger, associations for the organization and General focus of the team become a condition of societal well-being.

Not having at its disposal a system of forced slender bodies, Kazakh society had developed a complex of rituals and ceremonies aimed at active integration of the ethnic group, the upbringing in the collective is necessary and common emotions.

Being an important factor of cultural integration and an indispensable tool for intergenerational continuity, musical and poetic art could create and created within himself a genuine aesthetic value.

"Sea music" called the Kazakh steppe is one of the first collectors of Kazakh musical folklore A. V. Zatayevich. Remember: no girl has the moral right to marry without their own, it is composed, songs that any young man not befitted to be in love in ordinary prose. The whole musical and poetic scenes arose in the wedding ceremonies.

There is no need to list all the moments in the life of the individual and the collective, accompanied by musical and artistic creativity, because music and poetry art literally penetrates all spheres of human activity ranging from production basis to the most complicated forms of ideological superstructure, substituting themselves for a variety of functions.

I can safely say that the musical folklore in its functions had a much broader meaning than art as such. So, keeping the developed work skills, customs, traditions unwritten moral laws, views and beliefs, musical and poetic art, thanks to the artistic mindset that becomes more compelling and intelligible form than abstract ideas.

Musical folk art contributed to the transmission from generation to generation, religious beliefs, knowledge about nature and man, ecological, cosmological and other views and attitudes. From birth to death were accompanied by music, teaching and instructing each in his daily activities.

In the Kazakh nomadic society was free from direct productive labour folk professionals: Bard, Girsi, Akins, Anshi, Olense, Kabassi, Kuishi, who by the nature of its activities were performed by different functions. In every historically developed type of professionalism had its own division on schools and styles.

In the musical heritage of the Kazakh people has clearly identified two separate types of singing and instrumental.

One of the clearest manifestations of the spirituality of the Kazakh people is a rich song culture.

Before the revolution songs in the oral conditions of existence is deeply and seamlessly integrated into the daily life of the people. They played a very important role in shaping the personality of the person.

Songs created by many generations, taught youngsters morals, have shaped the aesthetic tastes. Their subjects are diverse. Almost everything was filled with the life of Kazakh sharua (peasant), was reflected in musical creativity.

Many Kazakh poets and thinkers noted the role of music in the lives of the people, but is particularly strong and bright has said about the song of the great national poet and enlightener Abai Kunanbayev:

Двери в мир открыла песня для тебя.

Песня провожает в землю прах, скорбя.

Песня — вечный спутник радостей земли.

Так внимай ей чутко и цени, любя!

In the twentieth century, folk music began to grow with new works, which are distinguished by the novelty not only of the content but also the expressive means of musical language. All the best in the music culture of the past continues to function in new social conditions of life of the people as a priceless legacy, as an artistic reflection of a previous age.

A constant journey of professional music professionals Anshi, Olensi - singers, Akin — poets-improvisers, Kuishi — instrumentalists, bearers of the spiritual culture, and helped them learn about the life of people, their thoughts and expectations. New topical themes constantly enriched the repertoire of performers, so the people they respected and supported, and if necessary sheltered from persecution.

Was considered a great honor for the host, if a wandering poet or singer stayed in his tent.

Ordinary people were available a deep understanding of the work of outstanding representatives of the folk and professional art that reflected their thoughts and aspirations, they found in him the strength, the source of faith and hope.

Song culture of the Kazakh people that have survived in modern everyday life as the rich spiritual heritage of the past, is categorized in the following genres:

1. Ceremonial and everyday songs (calendar songs-conspiracies);
2. Family-ritual songs (wedding songs ceremony, funeral rite songs);

3. Domestic songs (instructive songs, songs for kids);
4. Labor songs. Lyrical songs (love, about nature, about loss, songs-wills);
5. Songs of social protest (sharua songs, working songs);
6. Historical songs (songs about heroes, popular heroes).

Thus folk music and all kinds of music constitute a large part of contemporary musical and social life of the Republic, and its intonational dictionary is the basis of national musical release in the works of professional composers.

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*Zinaida Balayan, ASU, Ph.D. in Philology,
Associate Professor*

Raffi's «Melikates of Khamsa» and the Fate of Artsakh

*Зинаида Ваниевна Балаян, к.ф.н., доцент кафедры
литературы и журналистики, АРГУ*

Раффи «Меликства Хамсы» и судьба Арцаха

Эта работа представляет собой новый аспект исследований по арцаховедению, подчеркивая новизну идеи, научную структуру, комментарии и современное озвучивание.

Вопросы и задачи, представленные в исследовании, изучались и поднимались поочередно, была представлена их последовательность, которая несет их новизну, подтверждает теоретическое и практическое значение.

Обработка материала работы опирается на обоснованном исследовании, оценке ценностей, но в читательских кругах существуют разногласия с принципами и вопросами, представленными Раффи, касающихся некоторых правящих домов ветчины княжества Хамса, в частности с его подходом по поводу туземных и новых жителей.

В работах великого армянского классика Раффи, в рамках национальной идеологии, особое место занимает историческое исследование произведения «Меликства Хамсы». Для создания книги писатель провел подробный анализ всех исторических событий. Это неоценимый образец арцахской, армянской мысли.

Раффи ценил в своих исследованиях народные разговоры, обряды. Он одновременно использовал протоколы, которые существовали на территории меликств, читал и изучал протоколы различных типов, использовал истории, рассказанные мудрецами и представителями меликского рода, которые очень ценны. Книги, содержащие рассказы о Мелике Бегларе в Гюлистане, Мелике Аване в Джраберде, Мелике Шахназаре в Хачене, Мелике Аванесе в Дизаке, а

также другие источники послужили для Раффи богатым материалом для написания книги "Меликства Хамсы".

Для создания книги "Меликства Хамсы" использовались также ценные письменные источники и их ссылки. В "Заключении" они представлены следующим образом: "В качестве письменных источников я имел следующие письменные, еще неизданные труды, список которых представлен". "Также под рукой находились следующие книги": 1. Закавказье от 1803-1806 года. Н. Дубровина, С.Петербург, 1866. 2. Жизнь генерал-лейтенанта князя Мадатова, Издание второе, С.Петербург, в типографии штаба военно-учебных заведений, 1863. 3. Материалы из истории Кавказа, П.Г. Буткова, 3 ч., С.Петербург, 1869 г. [1].

Раффи, учитывая важность армянских первоисточников, пожелал придать изучению книги "Меликства Хамсы" исторический характер, а русские и другие источники использовал как "вспомогательные материалы" [2].

Спустя месяц после издания исторического исследования Раффи, узнав от Смбата Шахазиза о книге Платона Зубова "Карабахский астролог", завершает в 1882 году армянский перевод исторического романа и пишет предисловие "От автора" как ознакомление. Эти два труда имеют непосредственную связь между собой и дополняют друг друга, один в качестве романа, другой в качестве рассказа. С этой мыслью мы перевели "Карабахский астролог", считая его вспомогательным источником к истории "Меликства Хамсы" [3].

Говоря об истории Арцаха, Раффи считает, что Арцах состоял из 5 провинций, "которые граничили друг с другом, составляет целую область, которая сейчас называется Карабах, а в нашей истории известна как Арцах, или Малый Сюник. В более древние времена Арцах представлялся частью земли Агван".

Раффи также рассказывает о происхождении карабахских меликов, об их деятельности, об отношениях между ними и соседними народами: персами, турками, русскими. Эти страницы очень важны.

Наряду с описаниями каждого меликского дома, Раффи представляет широкие сферы деятельности пяти меликств, Карабаха, их отношения между собой, а также с турками, персами, грузинами, русскими и с русскими властями.

¹Смотрите Раффи, Меликства Хамсы (1600-1828), Тифлис, 1882, Избранные произведения, в 10-и томах, том 10, г. Ереван, Айпетрат, 1959, стр. 378-386.

² Раффи, Меликства Хамсы, стр. 386.

³Раффи, Избранные произведения, в 10-и томах, том 10, г. Ереван, Айпетрат, 1959, стр.13-14.

На этом фоне также представлено отношение чужестранцев к армянам.

Надо суметь углубиться в концепцию историко-философской системы, уловить сущность его идеологической, исторической системы. Для автора является превосходным открытием и коренным фактом большой размах Сюника в 18-ом веке, национально-освободительное движение, появление Давид-Бека, очень интересные Арцахские меликства, их победы, являющиеся кладовой национального духа.

В 18-ой главе исследования говорится о подписании Гюлистанского договора возле крепости Зейва: “Под его влиянием персидское государство оставило Российское, Карабахское, Шамахинское, Гандзакское, Шакийское, Балишское, Бакинское и Дубайское ханства” [4],- пишет Раффи.

Ценя воинские заслуги Мадатова, Раффи начинает статью так: “Князь Мадатов вышел из Карабаха в лаптях, а вернулся на свою родину генерал-лейтенантом, с грудью, покрытую орденами. Все, что имел, он получил с помощью умелого солдата, храброго воина” [5].

Учитывая героические подвиги князя Мадатова, высшим приказом генерала Ермолова в 1816 году он был назначен командиром отдельного отряда Закавказья: “В 1817 году был назначен окружным начальником Карабахского, Шакинского и Ширвинского ханств. Ему было велено вести контроль над руководством ханств” [6], - отмечает Раффи.

Раффи продолжает писать о том, что новое русское правительство находилось в таком шатком положении, что не имело времени, порой даже не считало нужным вмешиваться в споры меликов и ханов. В этом и была причина, что многие из меликов потеряли свои имущества или имели лишь часть из них. Мадатов занялся благоустройством в Карабахе, но, по наблюдению Раффи, “руководителем Карабаха снова остался Мехти-хан, который сохранил хоть и ограниченные, но древние права своих ханов, а русским, в своей стране видевшим рабство, не могло быть чуждым поведение хана, тем более, что его считали владельцем Карабаха и наследственным князем. “Победой в Шамкорской войны

⁴Раффи, Меликства Хамсы, стр. 338-339.

⁵Раффи, Меликства Хамсы, стр. 339.

⁶Раффи, Меликства Хамсы, стр. 339.

князь Мадатов и генерал Паскевич освободили все Закавказье" [7], - отмечает Раффи.

Весной 1827 года началась новая русско-персидская война.

В 1826-1828 гг. еще не завершилась русско-персидская война, но уже началась русско-турецкая война. В 1828-1829 гг. великого полководца Мадатова назначили командиром отдельного полка. Вступая в борьбу с турками со стороны Дануба, он прославился свойственной только ему победой. Раны, полученные на войне, дали о себе знать. 4-ого сентября, вблизи крепости Шумлай, на вражеской территории, в возрасте 47 лет перестало биться его беспокойное и храброе сердце.

По приказу царя, наградившего полководца орденом им. Александра Невского, тело командира дивизии перевезли в Россию и придали земле в Невском монастыре, вблизи того места, где похоронено тело нашего великого предшественника Суворова.

Расследование Раффи заканчивается в 1828 году завершением русско-персидской войны.

Большой военный налог был назначен Персии и, что самое главное, 40000 армян покинули Персию. Русское правительство разместило их на вновь завоеванных землях.

По убеждению Раффи, "история повторяется", а писатель - "пророк, который знает прошлое, знает настоящее, предугадывает будущее". Целых двести лет отделяют нас от периода Гюлистанского договора (1813 г.). Выиграв войну, Арцах освободился от турецко-азербайджанского деспотизма и создал независимую государственную структуру.

Противостоя в турко-азербайджанской агрессии, Арцах оказался на перекрестке переговоров межнациональной политики, дав повод открытому письму президенту России В. Путину вновь напомнить об уроках Гюлистанского договора.

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*Zinaida Arakeljan-Balajan,
ASU, Ph.D. in Philology,
Associate Professor*

***A. Beknazaryan's "Mystery of Karabakh"
and Russian-Persian War of 1826-1828***

З. В. Балаян,
*к.ф.н., доц. каф. литературы
и журналистики АргУ, НКР*

***"Тайна Карабаха" Апре́са Бекназаряна
и русско-персидская война 1826-1828 гг.***

Исследуемый объект данной работы – первая часть третьей главы научного исследования А. Бекназаряна "Тайна Карабаха", который вышел в свет благодаря меценатству богатого Бакинца господина Аракела Цатуряна и перевода с грабара на современный армянский М. Бархударяна.

Предмет исследования – история армянской литературы XIX века, в частности, той части, которая относится к Арцаху.

Как мы заметили, по поводу аналитики истории "Тайны Карабаха" литературная критика XIX века напечатала материалы в различных изданиях: "Мшак", "Меху", "Ардзаганк" и других.

И так, в критике "Тайны Карабаха" А. Бекназаряна впервые за 129 лет мы попытались дать анализ первоначальных и историко-сравнительных аспектов, стремясь выковать заключенное в нем рациональное зерно.

В связи с этим мы уделяем большое значение новизне работы, актуальности и практической значимости принятой теории, представляя "Тайну Карабаха" как достойное переоценки историческое произведение для арцаховедения и армяноведения.

Целью и задачей исследования является идентификация литературного контекста времени, национального и личного стилей, уместная и неуместная

борьба дружественных изданий, в следствии чего были не изданы литературные разработки и законченные работы.

Исследуемая основа данной работы излагает обучающую сторону примененных принципов, так как они являются результатом литературоведческого, историко-филологического, аналитического и ценностного анализа.

Экспертиза данного исследования развивалась фазовыми подразделениями.

Обращаясь к научной основе исследования, нужно отметить, что о книге были написаны различные мнения, лекции и различного рода другие интерпретации как журналистские, так и отдельные работы ("Тайна Карабаха" Раффи и другие).

Переоценка данной работы важна с точки зрения идентифицирования закрытых страниц арцаховедения и армяноведения.

Структура исследования сложная, все части имеют соединенные друг с другом круги, его переоценка имеет срочное и актуальное созвучие, практическое значение, а выдвинутые вопросы и задачи необходимость доказательства.

История армянской литературы и периодической печати свидетельствует о явлениях, носящих спорный характер, которые привлекли внимание определенных литературных, критических и публицистических кругов.

В 1886 г. в Санкт-Петербурге в переводе (с древнеармянского языка на современный армянский язык) Бархударяна Макара при поддержке мецената Аракела-ага Цатуряна было издано историческое исследование Апреся Бекназаряна "Тайна Карабаха".

Книга вызвала широкий резонанс. При этом отклики на книгу были весьма неоднозначными.

В периодической печати появились как отрицательные, так и положительные отзывы, рецензии, а также были опубликованы исследования других авторов (Раффи "Тайна Карабаха", Лео "Роман или история?", М. Бархударян "Критика критиков"). В конечном итоге, исследование Бекназаряна целиком было обесценено и отвергнуто.

Однако в ходе подробного анализа мы пришли к выводу, что исследование "Тайна Карабаха" содержит разносторонние исторические факты, документы, трактовки из страниц борьбы армянского народа Арцаха-версии, связанные с русско-персидским нашествием в течение XVIII в. и в начале XIX в., с русско-

армянскими (арцахскими) отношениями, а также с историческими, повествовательными, фольклорными, языковыми, дипломатическими, политическими, художественно-литературными, этнографическими, правовыми, управленческими, архивными и другими связями, с выявлением и раскрытием, научной мысли, Арцаха.

С этой точки зрения исследуемый материал приобретает современное научное звучание. Работа выполнена в русле новой современной критико-аналитической (герменевтической) и оценочной (аксиологической) системы.

Исследование Апреся Бекназаряна "Книга Апреся Бекназаряна "Тайна Карабаха" в контексте времени" представляет собой вторую часть историко-критического филологического исследования "Арцах в армянской литературе и искусстве XIX века", а первой частью данной книги является исторический роман русского писателя XIX века, профессора Платона Зубова, прожившего 30 лет в Закавказье, в Арцахе, "Карабахский астролог" или "Закавказский исторический роман".

Роман был издан в Москве в 1834 году. События и факты, изображенные в романе, относятся к периоду меликств Хамсы. По мнению известного академика Сергея Сариняна, роман является "воспоминанием об армянской государственности". Именно этот период истории лег в основу романа, поскольку он богат историческими событиями, охватывающими период с 1750 по 1826-1828 гг. Изображенное в романе время было ознаменовано "строительством" Шушинской крепости, созданием и ликвидацией Карабахского ханства, русско-персидской войной 1826-1828 гг., армяно-германо-австрийских и других политических отношений, а также трактовкой армяно-русских, армяно-персидских, армяно-турецких и армяно-грузинских отношений, изображением интересных исторических реалий и, наконец, толкованием понятия "исторический роман".

В герменевтическом аспекте раскрываются и обобщаются типичные образы меликов Хамсы, разоблачается их ненадежность. В этом сложном водовороте событий анализируются личное и общественное, их расхождения и сходства. В разногласиях, в столкновениях и конфликтах, в войнах, в кровопролитиях между меликами находится источник разрушения меликств Хамсы и политических потерь.

Третья часть исследования - “Меликства Арцаха” - является ценным историческим трудом прославленного армянского классика и критика Раффи. Исследование доведено до конца, учитывая представленную историком-романистом программу, целенаправленность, вопросы чести и достоинства, представление основополагающих частей армянской национальной идеологии, глубокое раскрытие важнейших исторических явлений. Таким образом, исследование ценно новой мыслью в арменоведении и арцаховедении, поскольку, как и “История Армении” праотца армянской истории Мовсеса Хоренаци (V век), так и историческое исследование “Меликства Хамсы” Раффи для армянского народа, особенно для армян Арцаха получило как познавательную-научную, историческую, так и большую литературную значимость.

Русско-персидская война 1826-28 гг. была освещена не только в вышеуказанном историческом исследовании, но и в ашугских художественных песнях. Об этом упоминается в книге “Жизнь генерал-лейтенанта, князя Мадатова”. В этих песнях описываются “воины-победители, их подвиги, нераздельные с именем Князя Мадатова. Они воспламеняли воображение поэтов, которым храброе войско представлялось каким-то грозным и истребляющим фантомом, внезапно появляющимся по всюду и разбивающим противников” [1].

Про эту войну армянский поэт-гусан Мискин-Бурджи (1810-1847 гг.), живущий в этот период в Гандзаке, также написал ряд песен, в которых описывается победа русско-армянских войск при взятии Гандзака на берегу реки Шамхор (3 сентября 1826 г.). Много лет спустя эта песня впервые научно оценивается нами:

*Посмотрите сколько с исламской верой душ идёт
Это Шах Абас Мирза в Иран султаном идёт.
Десять тысяч аранских войск - пятьдесят туркмен идёт
С двадцатью наместником 160 хан идёт,
Час смерти пробил сломя голову идёт...
Десять тысяч обернулись Гянджу завоевать
А сорок тысяч взять Карабах идут,
Взять в свои руки крепость (Шуши) идут
Гянджинец надел саван, взяв в руки меч*

¹ Жизнь генерал-лейтенанта князя Мадатова, Издание второе, г. Санкт-Петербург, ВЪ Типографіи Штаба Военно-Учебныхъ Заведеній, 1863, стр.126.

На помощь Шахзаде идёт

И с таким намерением мусурмане всё идут... [2]

Следующие строки свидетельствуют о том, насколько искренне посвятил себя службе отечеству Князь Мадатов, который на всех войнах одерживал победу, все дни его были наполнены службой, все думы его стремились к славе Отечества:

Потом Паскевич пришёл на помощь Мадатову

Солдаты бегают подряд: " Лев Мадатов идёт!"

Когда русский открыл из пушки огонь, они пустились в бег...

Прошли 40 дней, пришли русские войска

Армия Мадатова с 20-ю полковником-полководцем

В Акстафе отдыхали, а до Гянджи три дня дороги

Но в Шамхоре здох враг Мадатова Амирхан-Сардар

И на его труп прилетели ястребы...

Когда перед намазом идёт очиститься алтава (кувшин с водой)

из золота

Русский пришёл как сель, совсем другая погода

Для многих виновным словно шайтан идёт... [3]

В следующей победной песне говорится о славе, военном героизме, непобедимой силе русского оружия и мужестве армянского и русского солдат, о военном искусстве неповторимого, талантливое полководца генерала-лейтенанта Мадатова: князь Валериан (Ростом Григорьевич Мадатов (Мадатян-1782-04.09.1829)) родился в Карабахе, в центре Меликства Варанда-Аветараноц (Чанахчи), и является славным и непобедимым полководцем Российской империи:

Бедный Мискин-Бюрджи не вмешает ложь в свои слова

Смотреть бы на пыль когда армия Шаха бежит.

Солдаты взбесились, кровь влилась в глаза

Армяне брящут саблями не смотря налево-направо.

² Бекназарян Апрес, Тайна Карабаха, г. Санкт-Петербург, изд. И.Н. Скороходова, 1886, стр. 373.

³ Бекназарян Апрес, Тайна Карабаха, г. Санкт-Петербург, изд. И.Н. Скороходова, 1886, стр. 375.

*Войска Шахзаде бежали в Аракскую равнину
От удара Мадатова Тавриз и Тегран идёт,
Побеждённый, покаявший Абас Мирза-Шахзаде идёт... [4]*

За примерное мужество, храбрость и неустрашимость командующий 3-й Гусарской дивизией, генерал-лейтенант князь Мадатов 9 июля 1829 года был награжден императором Николаем орденом Св. благоверного князя Александра Невского.

Таким образом, все три части исследования имеют историко-политическую значимость как для армянского, так и для русского народов, и впервые в арменоведении и русистике эти труды основательно проанализированы нами и переоценены по принципам герменевтики и аксиологии.

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Z.M. Kuznetsova, Professor, Doctor of Education,
F.Z. Mustafina, Associate Professor, Ph.D.,
A.I. Morozov, Associate Professor, Ph.D.,
Federal State Institution of Higher Professional Education,
"Naberezhnochelnsky Institute of Socio-Educational
Technologies and Resources", Russia

Different Areas of the Games of the Olympiad and the Olympic Winter Games Positive Legacy

Today more and more interest on the part of many governments and countries is taken the organization of major sporting events. Every year dozens of countries come into confrontation with each other for the right to host the Olympics Games, World Championships, Universiade and it's not by accident. The results of the major sporting events are carefully analyzed to identify the positive and negative results, and one of the most important outcomes of the activities is the legacy [1]. The term "Legacy" today is the key to the organizing committees of large and mega sporting events. Legacy was a positive experience of previous mega sporting events as attractive on the background of all routine organizational processes. Positive legacy opens new standards aimed at improving, upgrading, renewal of the city, the region, the country where the event is held [2]. Analysis of the mega sporting event positive aspects legacy leads to the conclusion that the positive legacy is not expressed only in the direction of economic profits, it is implemented in many fronts [3]. In spite of this, the notion of legacy is often affected only in research management, which tend to focus only on the economic impact of these developments.

Legacy is a multifaceted phenomenon covering past, present and future. Under the legacy all planned and unplanned, positive and negative, tangible and intangible structures created for sporting events, which remain for a longer time than the event itself, are meant [4,5].

In this regard, the aim of our study was: to identify the various areas of the Games of the Olympiad and the Olympic Winter Games positive legacy.

Objectives of the study:

1. To analyze the literature on the issue of the Games of the Olympiad and the Olympic Winter Games positive legacy creating.
2. To analyze the actual results of the Games of the Olympiad and the Olympic Winter Games positive legacy.
3. To identify the different areas of the Games of the Olympiad and the Olympic Winter Games positive legacy.

The positive legacy of the Olympic Games in 2004 resulted in many directions. In the direction of the construction entirely new transport infrastructure, which included both ground and underground communication paths which can carry 1 million passengers a day (20 percent of Athens population) was created. There were built 90 km of new roads and 120 km of old roads were widened. An innovative computerized traffic control system was created and implemented aimed at traffic management. A new airport was also built. Byli realigning Waterfront area districts Faliron and Hellinikon were rebuilt, it opened new city avenues to the sea. Tourist infrastructure was also improved, the quality of accommodation in hotels increased several times, as the ratings of the leading marketing companies evidenced. 10578 buildings were renovated and painted, many illegal billboards removed.

About 90 percent of the district Schinias, situated on the water and marshy area, was transformed into Wildlife Refuge. Hundreds of thousands of trees and shrubs were planted there.

100,000 people were trained to technical, managerial and other professions related to the Games.

The positive legacy of Torino 2006 was implemented in the following areas. It was decided to place the key sports facilities in the city center (ice palace). It gave a possibility for a multi-faceted post-Olympic use of these facilities. Concerts of famous artists and composers (Bruce Springsteen and Pearl Jam), World Fencing Championship, ski jumping, bobsled, luge, and Winter Universiade, which was attended by more than 2,000 student athletes from around the world took place in these sport facilities.

In 2010 Palavela palace hosted the world championship in figure skating. The main stadium was renovated and now belongs to the football club Torino. Within two years after the Games in Turin 187 events took place and were attended by 577,500 spectators.

The development and implementation of a special program, which gives students the opportunity to train winter sports disciplines at the Olympic venues was positive legacy. Currently, 70% of the sport facilities are used for training and competition of athletes, amateur and open to the children.

Volunteer direction was implemented by the volunteer program in 2006 Noah, through which volunteers participated in the organization and holding of the Olympic Winter Games 2006. During the next 5 years they participated as volunteers in other major events in the region and the country.

The positive legacy of the environment was the introduction of an environmental management system. The project "Hector" aimed at carbon-neutral building, hopping jump was built in the landscape of the place Prigelato, through special delicate designs that react to changes in natural gradients and contours of the terrain.

Olympic Games 2008 left the following positive legacy. More than 400 million children from 400 thousand schools were exposed to the Olympic values through the organization of special events and activities and 550 Chinese schools participated in the program of cultural, educational and sports exchanges in partnership with schools in other countries.

In the direction of volunteering Games called a total of 1,125 mln people - 100 thousand of them were directly involved in organizing and hosting the Olympic and Paralympic Games and 400,000 were volunteers, who provided various services for the guests of the Games. Volunteer movement continues working up to this day that says about the legacy of volunteerism.

Positive trends of the accessible environment legacy was reflected in the creation of special ramps, which were installed in the streets, shopping centers and cultural attractions, the signals crossing the street have been adapted for the visually impaired pedestrians, were also created new parking spaces for persons with disabilities.

Infrastructure legacy area was the construction of three new subway lines, as well as a new ring road and express road to the airport. Passenger capacity was increased to 4.5 million people.

Olympic Winter Games held in Vancouver in 2010 left behind a significant positive legacy in the following areas.

In the direction of public transport capacity increased to more than 50 percent. 180 diesel-electric hybrid buses were purchased and put into the transport network. The new network path "Canada Line" built for the Games cut four times the travel time

from the airport to the central regions of Vancouver. Transport improvement, reduction of emissions, the use of public transport encourage cycling and other alternatives to the creation a sustainable standard of the urban area which serves as a model for the development of other cities.

In the direction of environmental and social environment 40 new gardens were created, in the creation of which the elderly and people with disabilities participated. It was one of the ways to integrate people with disabilities and older people into the society. Four garden areas were used for the supply of food to the organizations that arrange food items of the poor people.

Direction of Education has been realized through the establishment of training programs Vancouver 2010, which gave the opportunity to find work for young people, disadvantaged, indigenous people, single mothers and immigrants. Eighty percent of those who began a six-month training program completed it. Bouquets, awarded the winners were made by women who were in the risk group: abused drug users. They were trained by professional florists and they were subsequently offered jobs. In 90% of schools in Canada were conducted lessons related to the Olympic values and other aspects of the games were conducted.

In the direction of the housing environment temporary housing in the Olympic Village Whistler was sent to the six British Columbia communities, which provided 156 permanent and affordable homes for the elderly residents, the homeless and needy. In the area close to the city and in the city 1800 housing units for poor population were renovated.

Games called Canadians to volunteering. More than 75 000 people have volunteered to help with the games. Database of people willing to help volunteers is used today throughout the country.

The direction of the cultural legacy became a program called "Hastings Street Renaissance", the aim of which is to update facades, windows, and open spaces, old and abandoned houses.

Conclusion

1. The analysis of the literature on the issue of the Games of the Olympiad and the Olympic Winter Games positive policy creating can conclude that one of the important reasons for the tightening competition for the right to host mega sporting events are the various directions of the positive legacy that remains at the end of the event.

2. Analysis of the Games of the Olympiad and the Olympic Winter Games positive legacy actual results suggests that the organizers carefully planned legacy taking into account the positive and negative experience of previous events. A positive legacy with each new event tends to increase. The organizers of the games open new directions of the positive legacy development. Each event carries a unique experience in the field of legacy. Positive legacy is realized in virtually all spheres of human life and affects the quality of life.

3. Today, the legacy is not only positive change, but also negative, planned and not planned, material and not material. Legacy includes many areas in which it develops. Each mega sporting event opens a new direction of development or already is implemented in existing lines. We have identified the following areas of the positive legacy of the Games of the Olympiad and the Olympic Winter Games: construction, urban infrastructure, environment, social environment, urban environment, education, transport, environment, volunteering.

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Z. M. Kuznetsova, I. I. Dauletshin, S. A. Kuznetsov,
*Federal State Institution of Higher
Professional Education,
«Naberezhnochelnsky Institute of Socio-Educational
Technologies and Resources»*

Finger dermatoglyphics influence to the young gymnasts physical capacity

Abstract: The problem of selection in gymnastics, the reasons need for research in this direction are depicted. The results of 9–10 years gymnasts finger dermatoglyphics features study are detailed. The results show that the sport through the selection and training generates business model encompassing all body systems, including complex morphogenetic finger dermatoglyphics.

Young gymnasts compared to non-athletes have a higher total complexity of finger patterns. Analysis of finger patterns showed that gymnasts, as well as those not involved in sports, dominated the loop pattern, but the first feature is that this pattern presents almost equally to curl pattern.

Among other gymnasts often identified phenotypic combinations LW and WL, deltaic high index (within $13,94 \pm 3,02$) and symmetry factor equal to 0–1, 9–10 aged gymnasts have arcs on the second finger of the left hand, loops – on the fifth finger of the left hand and curls – on the fourth finger of the right hand.

Keywords: sportsmen, artistic gymnastics, gymnasts, selection, model descriptions, dermatoglyphic features.

INTRODUCTION

The problem of scientific substantiation of selection and orientation in sports has always existed in our country and abroad [16, 18, 19, 20, 21]. The solution of this problem allows to reduce the time of high-class athletes training, giving them thus a longer period of performances in the international arena [14, 16, 23].

Prevailing in the Russian system of gymnastic training and technology should be improved in line with the trend of gymnastics [1]. It should be noted that this provision applies fully to the technology selection and sports orientation in the gym. In our

opinion, there are the following main reasons for the need to improve methods of selection and sports orientation of young gymnasts.

First, at the present time almost all the competitions in gymnastics among children are conducted by approved Russian Federation gymnastics mandatory program, which is a set of required elements for each type of all-around gymnastics, gymnast, depending on the discharge must perform and connect them at his own discretion [9].

Secondly, the recently adopted rules allow gymnasts to compete specializing in individual events. Results of the 2004 Olympic Games in Athens showed that successful, especially men were gymnasts-«specialists». V. M. Smolevsky [22] writes that the rules can be criticized from the standpoint of prestige team events and achievements in the all-around, but he points out that among the winners were athletes over the age of 25 years, and the gold medals among men out of 8 won representatives from 8 different countries. According to the scientist, in the foreseeable future position of the International Gymnastics Federation (FIG) is unlikely to change and should be considered when developing a strategy and tactics of gymnasts long-term training.

E. Y. Rozin [19] notes that the selection system is shown as one of the contradictions of modern gymnastics: the struggle for mass sports, bringing to sport number of studies dealing with them and, along with it, the professional selection of promising athletes gifted with the inevitable classifying contingent. He emphasizes that gymnastics carries the heaviest losses on the initial stages of specialized training, which explains the lack of scientific-based regulatory gymnastics system requirements, allowing to diagnose, assess and predict the development of the main indicators of physical condition and fitness athletes in complex.

All of the above determines the urgency of the problem and the need for additional selection criteria in gymnastics.

Objective: to develop additional criteria of young gymnasts selection at the initial stage of specialized training on the basis of finger dermatoglyphic indicators.

To achieve the objectives of the study the following **tasks** were defined:

1. To study gymnasts of qualified junior I and III categories finger dermatoglyphic indicators.
2. To identify the features of the dermatoglyphic, typical for young gymnasts.

RESEARCH METHODS

Methods of research: theoretical analysis and synthesis of the literature data; pedagogical supervision; medical and biological methods (computer technique «InfoLife»); testing of the special physical (SPP) and technical preparedness (STP); methods of mathematical-statistical data processing.

Experimental work was carried out with gymnasts of 9 years ($n=15$) and 10 years ($n=16$) in the research laboratory of Povolzhskaya State Academy of Physical Culture, Sport and Tourism and sportkomplex «Yar Chally» Naberezhnye Chelny, Republic of Tatarstan, Russia.

Finger patterns studied using hardware-software complex «InfoLife» (patent certificate №2012612456).

Defines the types of patterns (A – arc, L – loop, W – curl); the frequency of their occurrence; phenotypes finger dermatoglyphic in accordance with the theory of monomeric dominant inheritance of types A-L-W: AL – presence of arcs and loops, ALW – the presence of arcs, loops and curls, 10L – ten loops, LW – the presence of loops and curls with a predominance of loops ($L \geq 5$), WL – the presence of curls and loops with the prevalence of curls $W (\geq 5)$, 10W – ten curls [1].

By the sum of the deltas of all patterns calculated deltaic index (D10), and by coincidence/non-coincidence of patterns on each of the five pairs of homologous fingers – symmetry factor. Depending on the degree of asymmetry of the individual patterns in the fingers, this figure varies from «0» (the same patterns on five pairs of fingers) to «5» (the patterns do not coincide at one pair of homologous fingers). We have carried out the separation of gymnasts into 2 groups: group 1 – «symmetric» (when the exponent of 0–1); group 2 – «asymmetric» (when the exponent of 2–5).

RESEARCH RESULTS

Study of young gymnasts finger dermatoglyphics showed that 9 years old children have deltaic index (D10) 14.53 ± 3.07 , 10 years old children – 13.94 ± 3.02 . In general gymnasts aged 9–10 have D10 matter within 14.23 ± 3.01 .

Among children involved in gymnastics, the incidence of finger dermatoglyphics patterns are as follows: gymnasts of 9 years: A – 3.3%, L – 48.0%, W – 48.7%; gymnasts of 10 years: A – 3.1%, L – 55.6%, W – 41.3%. Summary frequency whorl types analysis ALW of 9–10 years gymnasts indicates dominance of the patterns «loop» (51.9%) and «curl» (44.8%) over the pattern «arc» (3.3%). Noteworthy minor delays

the occurrence of the helix-loop patterns among young gymnasts compared to non-athletes.

From the results obtained in the study we can see that 73.3% of 9 years gymnasts belong to the group of «symmetric», 26.7% – to a group of «asymmetric». Among 10 year old gymnasts the 1st group includes 81.2%, the 2nd group – 18.8% of gymnasts. In general, among the young gymnasts revealed 77.4% of the subjects belonging to the group «symmetric», 22.6% – to a group of «asymmetric». Symmetry factor of gymnasts age 10 years less than of 9 year old gymnasts – 0.52 ($p > 0,05$).

In our study the qualitative characteristics of finger dermatoglyphics (combination of phenotypic patterns) among the groups of studied gymnasts were compared. Gymnasts of 9 years are characterized by the predominance of the two phenotypic combinations of loops with swirls, such as WL (53.3%) and LW (26.7%); rarer – phenotype ALW (20.0%). In the group of 10 years gymnasts decrease in the proportion of phenotypic combinations WL and ALW on increased occurrence phenotypes LW and AL are marked. So, they most often detected phenotype LW (43.7%), somewhat less – phenotype WL (37.5%) and even more rarely – phenotypes AL (12.5%) and ALW (6.3%). Among young gymnasts phenotypes 10W, 10L do not meet.

Summing up the data on the investigated age, we found that the phenotype WL owns 45.2% of the study, a phenotype LW – 35.5%, phenotype ALW – 12.9%, phenotype AL – 6.4%. The total number of phenotypes WL and LW is 80.7% (Figure 1).

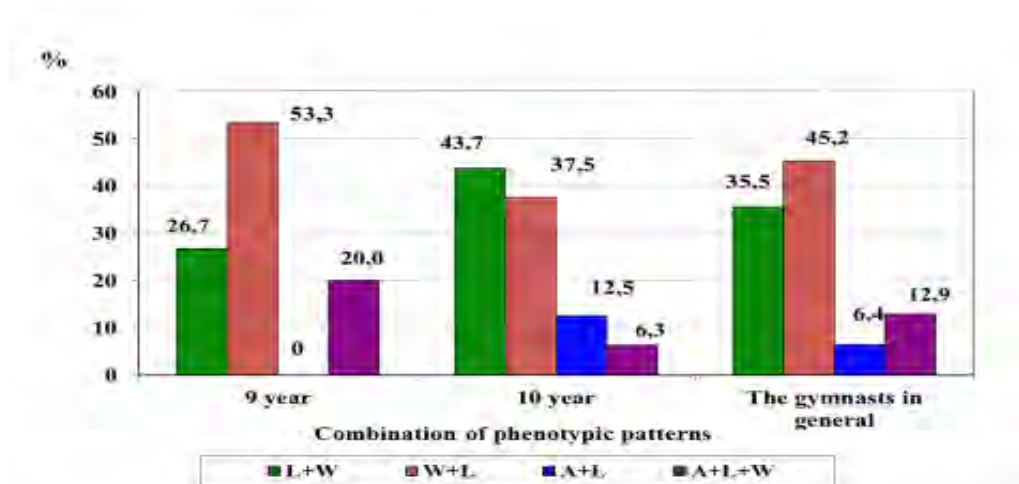


Figure 1. The distribution of finger patterns combinations among young gymnasts (%)

The frequency patterns on individual fingers also reflect the group specificity of sports [1]. As the result, our study found among 9 year gymnasts arcs most commonly found on the third finger of the left hand (20.0%), among 10 year gymnasts – on the

second finger of the left hand (18.8%). Among 9 year gymnasts loops most frequently observed on the fifth finger of the left hand (80.0%), and among 10 year gymnasts – in the third fingers of the right hand and fifth fingers of the left hand (by 87.5%, respectively). Among 9 year old gymnasts helix patterns are most frequent on the fourth finger of the right hand (66.7%), and among 10 year old gymnasts – on the first fingers of both hands and the fourth finger of the right hand (by 68.7%, respectively). In general, among 9–10 year gymnasts arcs on the second finger of the left hand (16.2%), loops – on the fifth finger of the left hand (83.9%), and curls – on the fourth finger of the right hand (67.7%) are frequently found.

The next stage of the study was to analyze the distribution of finger patterns combinations among young gymnasts in accordance with their special technical preparedness in certain types of all-around gymnastics.

9 year gymnasts holding mandatory programs I youthful discharge on rings, parallel bars, horizontal bar, vault and floor exercise, the dominant phenotype is WL. Among those engaged in the requirements of the pommel horse most other common phenotype LW is met. In the group of 10 year gymnasts (III level) predominance of phenotype LW is marked against the phenotypic combinations WL proportion reduction.

As shown by correlation analysis, 9 year gymnasts in contrast to 10 year registered reliable indicators of dermatoglyphic relationship with various parameters of their special physical and technical training.

Among 9 year old gymnasts significant correlations were revealed in the following pairs:

– deltaic index in combination with the results of tests «20 m run» ($r=0.54$), «long jump from place» ($r=-0.52$), «hanging scale rearways (back lever)» ($r=-0.56$), «handstand» ($r=-0.55$);

– amount of curls in conjunction with the test results «20 m run» ($r=0.53$), «long jump from place» ($r=-0.55$), «force lifting» ($r=-0.52$), «hanging scale rearways (back lever)» ($r=-0.58$), «handstand» ($r=-0.65$);

– the number of loops in combination with test results «long jump from place» ($r=0.56$), «swiss press to handstand» ($r=0.55$), «force lifting» ($r=0.67$), «hanging scale rearways (back lever)» ($r=0.58$), «handstand» ($r=0.72$);

– symmetry factor in combination with STP on the horizontal bar ($r=-0.57$).

In our opinion, the results of correlation analysis can be explained as follows. In accordance with the exemplary program in gymnastics for assessing special physical preparedness 9 year old gymnasts used control tests, which are more specialized compared to those applicable when working with 8 years gymnasts. This means that the body of 9 years gymnasts is not enough to train and, therefore, the results of testing show that they can estimate the predisposition to a particular muscle activity, which is incorporated genetically. The lack of reliable correlation coefficients among 10 year old gymnasts shows that this age of special physical training to a lesser extent dependent on natural instincts, and is largely determined by athletes training.

DISCUSSION

Shift towards earlier timing of many sports, especially gymnastics, increasingly complicates the practice of sports selection. Among children of primary school age it is not always possible to distinguish between sports important qualities of the body corresponding to the model of highly skilled athletes, as they have not been formed in the child's body. In connection with this initial screening questions and orientation in the early stages of ontogenesis, according to T. F. Abramova [1] and others, there is need to be addressed in any other way than on the stages of improvement and excellence, namely the use of genetic markers.

According to E. A. Oleinik [17], dermatoglyphic features are among the most affordable for the study of genetic markers that are unique to each individual and are an integral component of the overall constitution, which reflect the general patterns of reactivity, spatial and temporal characteristics of ontogeny and interaction with the environment.

In [1, 17] authors point to the importance of dermatoglyphics sporting opportunities study for the reason the genes that determining certain fundamental biochemical processes in the body and many innate inclinations and the pace of human development are closely linked with other genes, forming features of the skin finger patterns.

In the scientific and methodical literature [1, 12, 17, 24], there are numerous data showing that low values of the deltaic index finger and simplification patterns are a sign of speed-power operation, high deltaic index finger and complication patterns indicate a tendency to sport with complex coordination. Sports with primary development of endurance occupy an intermediate position. In these works, as well as in many others is convincingly shown dermatoglyphics characteristics knowledge of can help

the coach in predicting the ability of young athletes to certain types of sports, in selection of the sport activities nature, adequate innate characteristics of the organism.

In accordance with the biomechanical and energetic characteristics of different sports representatives T. F. Abramova [1] indicates significant differences in the pattern of finger dermatoglyphics traits variability, allowing several groups selection:

Group 1 («speed-strength») – cyclic sports, speed-strength character, priority kreatinfosfate source of energy (sprint, skating sprint etc.);

Group 2 («endurance») – cyclic sports, priority aerobic energy mechanisms (rowing, kayaking, biathlon, long-distance running, swimming, etc.);

Group 3 («endurance-coordination») – sports, mixed or acyclic on biomechanics and mixed energy supply competitive activities (playing sports, figure skating and freestyle);

Group 4 («coordination») – sports with a complex biomechanics of motor actions in a predominantly glycolytic energy (wrestling, weightlifting, boxing, etc.).

It is important to note that representatives of «endurance-coordination» sports have common and relatively predominant occurrence of the same phenotype LW with the mandatory second frequency phenotype WL, which gives total from 68 to 77%. In this sports coordination complemented minor inclusion phenotypes AL, ALW and 10W [1, 17].

At the same time, many researchers [1, 12] that consider elite athletes compared with less-skilled athletes are characterized by a higher incidence of curls (respectively, 48.9% vs. 30.6%) and a higher total crestal count (213 vs. 175).

CONCLUSIONS

1. Young gymnasts compared to non-athletes have a higher total complexity of finger patterns. Analysis of finger patterns showed that gymnasts, as well as those not involved in sports, have dominating the loop pattern, but the first feature is that this pattern presents almost equally to curl pattern.

2. Among other gymnasts phenotypic combinations LW and WL, deltaic high index (within $13,94 \pm 3,02$) and symmetry factor equal to 0–1 are often identified, 9–10 age gymnasts arcs on the second finger left hand, loops – on the fifth finger of the left hand and curls – on the fourth finger of the right hand are frequently found.

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Helen Abadzi,

World Bank, Washington DC, USA

Education for All in Low-Income Countries: a Crucial Role for Cognitive Scientists

ACRONYMS

DFID- Department for International Development; FTI- Education for All Fast Track Initiative Secretariat; GPE- Global Partnership for Education; RTI- Research Triangle Institute; UNESCO- United Nations Educational, Cultural, and Scientific Organization; UNICEF- United Nations International Children’s Education Fund; USAID- United States Agency for International Development.

1. TRIUMPHS AND TRIBULATIONS OF EDUCATION IN LOW-INCOME COUNTRIES

About 60-72 million children are of school worldwide. Ensuring their education, particularly in low-income countries¹, is an important goal of the international donor community. The United Nations agencies and affiliated organizations have devoted much thinking and resources in the last 20 years to improve access to good-quality education for low-income populations.

In 1990, a worldwide initiative was instituted to ensure that by 2015 all children in the world should complete primary school. The Education for All initiative [1,2] has become a high-profile operation aimed at raising the funds needed to close the gap between national budgets and the investments needed for universal primary enrollment. The funds pay for budget items such as school construction, curriculum development, textbook production, teacher training and hiring, management information systems, student assessment, and evaluation capacity development. Efforts have borne fruit. Some of the poorest countries, such as Niger, Burkina Faso, Ethiopia, or Cambodia increased enrollments by multiples between 2000 and 2010 (See statistics at www.globalpartnership.org; Education for All Fast Track Initiative, 2010).

¹ *The World Bank defines country groups in terms of per capita gross national income, using the Atlas method. In 2011, thresholds were: low income, \$1,025 or less; lower middle income, \$1,026 - \$4,035; upper middle income, \$4,036 - \$12,475; and high income, \$12,476 or more (retrieved from www.worldbank.org).*

Annually about US\$13.5 billion are needed to educate the children of low-income countries [3,4]. This herculean task is being financed by scores of donor agencies and partners. There are United Nations organizations, such as UNESCO and UNICEF; multilateral institutions such as the World Bank, African Development Bank, the Organization of American States, and others; bilateral donor agencies, such as United States Agency for International Development (USAID); many national and international non-governmental organizations, such as Save the Children, Oxfam, or Actionaid; civil society groups that advocate for education. Many consulting companies are also involved that vie for contracts to implement various initiatives. Partners have worked hard to harmonize their procurement and accounting rules to ease the reporting burdens of low-income countries. Thousands of very dedicated staff work in these agencies, managing the bureaucracy and providing advice to governments and donors.

So, do schools in low-income countries teach students the needed basic skills that will help them rise out of poverty? Unfortunately not. Many of the enrolled students learn very little and fail to reach even minimal competencies [5,6]. Early-grade reading fluency tests in the primary grades show that in some countries 90% of the second or third graders fail to read even a single word, and many do not even know individual letters [7,8]. As a result, students abandon school early and remain illiterate; in sub-Saharan Africa, only about 67% of the beginning cohort graduate from primary school, and many of the graduates are functionally illiterate [9]. The Africa Learning Barometer (supported by the Brookings Institution) reported that overall 53% of poor children and specifically 43% of children from rural areas fail to learn basic literacy and numeracy skills [10]. Similar data are reported from other low-income countries, such as Yemen, Papua New Guinea and East Timor.

Failures are not just limited to basic reading or the poorest countries of Sub-Saharan Africa; they extend to higher grades of lower-income countries. International comparison tests such as TIMSS and PIRLS² show large performance differences among the 49-63 countries that participate (Most low-income countries do not participate). For example in grade 4, the 2011 PIRLS score for Hong Kong was 571 compared to 310 for Morocco and a scaled score of about 330 for Botswana and South Africa [11, p. 45]. Similarly in the 2011 TIMSS, the 4th grade average score for Singapore was 606 compared to 238 for Yemen.

² *Trends in Mathematics and Science Study, Progress in International Reading Literacy Study (TIMSS).*

TIMMS and PIRLS socioeconomic data have showed large score differences by parental levels of income and education. For example overall students of many resources scored in TIMMS an average of 535, and those of few resources scored 415 [12, p. 13]. The students who could do early numeracy tasks very well when they began primary school scored 524 compared to a score of 451 for those who could not do them well. On the basis of these and other data, it was found [13] that children in low-income countries are able to answer correctly only about 30 percent as many questions as children in upper-income countries. It has been estimated [6,11,13] that the learning of the average child assessed in low-income countries is at about the 5th percentile of children in upper-income countries.

It appears, therefore, that many lower-income countries are raising a generation of nominally schooled but illiterate students. Organizations such as UNESCO have raised alarms (e.g., [14]). Some publications and blog articles describe the situation as a “learning crisis” [15].

In some respects, the learning crisis should not come as a surprise. Many students lack the skills necessary for performance. They often go to school without pre-school experience or home preparation for academic tasks. They may have limited vocabulary even in their own languages; they may have developmental delays and poor executive control. Many suffer from malnutrition and diseases that are known to compromise skills acquisition [16,17]. These students can certainly learn, but they need specific inputs and extra teaching time to master preliminary tasks. In high-income countries, such students would get individualized attention by well-educated teachers, a surfeit of materials, and follow up at home. In many low-income countries, the only available option would be private tuition [18].

Another important reason for failure is limited instruction and little or no feedback. To implement Education for All, public schools of countries such as Malawi or Congo Democratic Republic must admit massive numbers of children with very limited class space or staff. In cities like Lilongwe, classes may have over 100 students in the early grades [19]. The teachers may have the equivalent of 4th grade education, may not know how to teach, and may be absent on average 20% of the time. Schools often start late in the school year and end early [20]. Countries that lack sufficient buildings and teachers may reduce class hours to fit all students in multiple shifts. As a result of all these constraints, the students may only get 39% or less of the instructional time given to first graders in higher-income countries [21]. And when teachers teach, they may interact with the few who can do the work and ignore the rest [22,23]. Nonperformers may attend sparsely until they drop out.

Multilingualism further complicates the picture. In many low-income countries citizens speak numerous languages; so many governments have adopted English, French, Portuguese or Arabic as their language of instruction. Nearly all countries of Sub-saharan Africa and the South Pacific face this complexity. Students must learn the official languages during class at the same time as reading. The above languages happen to have complex spelling systems, which may take two or three years to master. In addition, textbooks are usually imported, expensive, scarce, or inappropriate for the students' knowledge level. Without them, class time is largely spent copying incomprehensible texts from the blackboard. Scant instruction suffices only for those few who are inordinately intelligent or the better off who get help at home. Thus, Education for All becomes in fact education for the gifted.

Clearly the above circumstances reduce the opportunities to obtain new information, elaborate it, practice basic tasks to the point of effortless execution, get feedback. Despite systemic limitations, certain classroom activities could be modified to increase precision, timing, or frequency of some inputs. However, classroom issues receive limited attention. Instead, sociocultural factors are emphasized such as child marriage, child labor, or the effects of income inequalities, emotional and physical well-being in schools, safety issues in conflict-affected countries, or gender (e.g., [24, 25, 26, 27]). Attention to sociocultural complexity may detract attention from instructional variables³, or result in conflicting advice about educational quality and use of funds.

These exigencies are directed at government and donor staff who are burdened with the complex financial and logistical problems involved in expanding their school systems. Procurement events, disbursement schedules, budget meetings, contracts have clear deadlines and take up much of officials' time. Multiple and complex demands for accountability may push learning issues low on the agenda.

Given the exigencies of political economy and the extreme limitations of low-resource schools, how can students learn more and perform better? Whose advice to governments and donors is most likely to achieve results? The article presents some aspects of this very complex topic and suggests how research on memory and cognition can be used to improve learning outcomes for the poor.

³ For example one draft consultant report about Ethiopia stated in 2013: "Learning outcomes depend on a variety of factors, both on the side of educational provision, and with regard to sociocultural, environmental, and individual factors. Any assessment of the impact of higher teaching quality on learning outcomes must take account of this complexity".

One note is important on documentation. Many cited reports by donor agencies and consultants are work documents that may not necessarily meet rigorous academic standards. Also, certain topics that are well-known in international development have not necessarily been documented, such as the academic background of staff. However, the issues are critical and merit publication.

To illustrate the knowledge needed, some real-world questions are presented below.

2. THE LEARNING CRISIS AND POLICY ADVICE DILEMMAS

A foreign service officer from a European country manages the bilateral aid program of her country in certain African countries. Citizens in these countries speak 15-37 languages, so instruction takes place in English, French, or Portuguese. Textbooks are scarce, so most classroom time is spent on transcription; and about 85% of students remain illiterate. In the course of a week, the following topics require input. What policy advice could be offered and on what basis?

- Many donors advocate that children should learn in a language they know best, so one government developed a policy of teaching children in local languages for the first three years. One colleague wonders why it is necessary to delay English-medium instruction. His children went into French immersion class and did very well. Which research studies can be used to facilitate decisions?

- A team of economists spent about a million dollars for a randomized experiment that tested whether better school management improves learning outcomes. The answer was negative (See for example [28]). The economists searched for answers, but they did not think of examining the grade 1 reading book used in that country. The book started with entire sentences in English and no obvious attempt to teach letter sounds. How important was the textbook vis-a-vis school management?

- The primary education director in the Ministry of Education is preparing new books for grade 1 reading but gets contradictory advice. Some specialists believe in phonics and others in the whole word approach. Some suggest that instruction should start with entire sentences, then words, then letters, and others believe in the opposite order. Which research could be used to predict likely outcomes of each viewpoint?

- Many students completing primary school can barely decode, so the government was advised to start youth centers that would teach “flexible” 21st century skills. A consultant will develop competency-based curricula that will minimize teaching of facts and focus instead on critical thinking and catalytic communicative skills. Does existing research suggest that this will work?

- To develop creativity among students, one government plans to buy one million inexpensive laptops. Most students are illiterate, and the computers do not include software for teaching basic skills (See for example [29]). Proponents say that computers will improve 'lateral thinking'. Should this low-income government spend scarce revenues to buy laptops for all children?

The above questions are hard to answer and are rarely encountered in higher income countries. Governments and donors must decide on certain solutions that are reasonably effective and politically acceptable, and then dedicate taxpayers' money to them. Many decisions have far-reaching consequences for citizens and typically involve millions of dollars. They must often be made in a matter of days or weeks, so research studies are out of the question. It is important therefore to follow the most reasonable advice available at a given moment.

Which body of knowledge can effectively advise governments and donors on how to improve learning in low-income classrooms? No clear contender exists. Staff who work in international development typically have advanced degrees in a wide variety of fields, which typically offer no learning-related coursework: Economics, finance, statistics, political science, international relations, comparative education, education policy, sociology, political science, or literature. Not surprisingly, donor agencies tend to recommend policies that reflect the academic preparation of employees. Few documents offer actionable instructional advice (e.g., [30,31]). Instead, agencies produce countless documents attributing learning problems to low incomes, gender biases, psychosocial development, community conflicts, social theory, or malnutrition [32,33].

Economic and management advice may also detract attention away from classroom learning. Certain economists consider the classroom a "black box" and they posit that if teachers are made accountable, they will somehow find means to make more students learn. To improve quality, governments are urged to invest in school-based management and give grants to schools under the supervision of citizen committees [34]. Countries are also advised to invest in merit pay and training, in hopes that incentives will increase attendance and teaching quality. To assess and evaluate the results of various interventions, the donors have heavily invested in statistical data collection and international comparative tests [35].

Added to the varied academic backgrounds of donor agency staff is the human tendency to interpret unfamiliar situations through easily available memories (e.g.,

availability bias, [36, pp. 65, 129-136]. Few studies have explored the educational beliefs of staff (e.g., [37, p. 71; 38]). But whenever instructional advice is given, it seems to reflect a middle-class perspective of well-trained children who have been learning academic content since birth. As shown above there are large test score differences across socioeconomic strata; the better-off students may be better prepared to study more complex topics, and they are more likely to have better educated teachers. These may be reasons why education advisors often condemn memorization and recommend “modern” discovery methods over “traditional” routines. They may recommend a child-friendly classroom climate, “active learning”, child-centered learning, constructivism, transformative education, teaching that is individualized and relevant to children’s lives (e.g., [39,40]). They may expect teachers who are barely literate to carry out reflective practices and complex classroom activities [41], [24, pp. 54, 110]. Some expect all teachers to use computer technology, discounting the training and procurement problems likely with large-scale applications.

Since there is no clear corpus of research that guide on difficult issues, large-scale consultations are sometimes held to arrive at “best practices”. Certain organizations may invite hundreds of staffroom international agencies and organizations involved in education and ask them to comment on various questions until a consensus emerges. For example, the Interagency Network for Education in Emergencies (INEE) has conducted hundreds of workshops seeking advice from persons involved in education on how to teach conflict-affected children. The consensus resulted in about 70 variables to be used as Minimum Standards for education in emergencies (www.ineesites.org). The theoretical framework created by these standards emphasizes community involvement, security, human rights, emotional healing, and teaching according to cultural context. The Brookings Institution also led a large consultation in 2012-13 to determine what the students of the world should know and how to measure their achievement [42]. In the first two phases of the study, nearly 1,000 people in 84 countries informed task force recommendations. However, few of the participants had experience in teaching school or studying memory research. The document with the initial findings uses in 101 pages the words ‘learn’ or ‘learning’ about 209 times and ‘teach’, ‘teaching’, or ‘teacher’ about 26 times. However learning research is rarely cited in conjunction with these⁴.

⁴ Another document on the education of marginalized children uses the word “learn” or “learning” 153 times in 35 text pages. It also uses “teach” and “teaching” 18 times, but it does not refer to any research or propose means for students to learn better [27].

Overall, the chorus of advocates about the education of the poor rarely includes people with expertise on how people learn. Few if any staff working in international development have studied cognitive psychology, cognitive neuroscience or related disciplines. If expertise in learning were more widely available, information processing principles could be used to advise governments. An international strategy to make learning more efficient could focus on the information processing commonalities of humans rather than cultural and individual differences: encoding, consolidation, retrieval, forgetting [43]. The environment certainly modifies some aspects of learning and cognition [44]. However, similarities of cognitive development across cultures at about the same age suggest applicability of basic information processing functions to children [45]. It could be possible to optimize classroom activities of low-income countries and increase efficiency in encoding, consolidating, and retrieval of needed information.

Research suggests that people must first learn to execute essential skills fast and automatically, so that they can devote their working memory to more challenging and complex cognitive tasks. Fluent performance in various skills results from practicing and automatizing progressively larger chunks of information [46,47,48,49]. Students must also acquire networks of well-connected knowledge that will effortlessly arrive in working memory to help reach conclusions and make decisions [50]. As mentioned earlier, many students in low-income countries fail to master fundamental skills, and subsequently perform poorly in the more advanced skills. This pattern suggests failures to learn what might be called for a lack of a better collective term, "simpler" cognition⁵: perceptual learning, chunking, mapping letters to sounds, reading and math automaticity, executive control. To put it simply, it is difficult for students to analyze the meaning of text when they can hardly lift it "off the page".

It is hard to engage in critical thinking and transformative learning when students must consciously search their memory for essential information items. Survivors able to tackle more complex concepts do so years later than students of the same grades in better off countries.

⁵ "Lower-level" processes are not simple, but the term 'simpler' cognition is used as a placeholder, given the frequent use of the term "complex cognition".

Government and donor staff have not sufficiently focused on these prerequisite skills. The “simpler” cognitive functions are largely unconscious, so people have limited insights about them [51, p. 47]. Also middle-class children, with whom donor staff are familiar, learn them quickly. This may be one reason why documents often lament the lack of basic skills but rarely drill down into the specific variables that must be reinforced.

These variables could come sharply into focus if an information processing framework guided educational decisions. It would emphasize in all cultures the acquisition of speed and automaticity in basic skills, such as reading, writing, or math [52]. Without this focus, advice to low-income countries can be misleading. The following section offers some examples.

2.1 Reading Instruction for the Very Poor

Reading is the skill that falters most often in low-income countries. Early action is crucial because often students drop out in grades 1 and 2. Fluency acquisition by the end of grade 2 at the latest may help them stay in school; and if life circumstances force dropout, fluent readers may continue to decode environmental print and thus retain the skill [53]. To teach such high-risk populations governments should aim for efficiency. Teaching methods should target the weaker students and aim to teach nearly everyone to read.

Reading neuroscience helps point to the important variables and activities that may speed up automaticity. Visual perception research suggests that simpler visual patterns are faster to automatize and critical spacing affects reading speed [54]. Practice with corrective feedback reduces reaction time and links letters into increasingly larger chunks [55]. Eventually, the visual word form area is activated, enables recognition of entire words [56], and makes it possible to process multiple letters in parallel. Many psychological and educational studies suggest that teaching individual letters matched with sounds may efficiently automatize reading (e.g., [57, 58]). In consistently spelled languages, which constitute the vast majority of the world’s languages, fundamental instruction requires only about 100 days in most scripts [59]. By contrast, literacy instruction in the complex orthographies of English or French takes about three years and requires some learning of whole words [58]. Word shapes constitute more complex patterns that take longer to automatize.

Unfortunately low-income countries often get garbled advice. Reading specialists tend to come from high-income Anglophone countries and may have ambivalent

feelings about phonics, given that instruction in English cannot completely rely on them. And since middle-class children progress quickly, curricula are often designed to focus on textual meaning rather than teach the script [60, pp. 2, 116].

However, to understand, students must read fast enough to input sufficient text into working memory and retain it long enough to make sense out of it. If they know the words, they may understand their literal meaning [59]. The relationship between speed and comprehension has been documented repeatedly in education [61,62,63], but without understanding working memory functions, the relationship makes no sense to some education advisors. Some argue that speed should be discouraged because children may just "bark at print" [64]. Several others state that if students do not understand what they read, they are not really reading; they are merely decoding. But with limited practice, it may take years to acquire fluency. And those who manage after years of schooling may read too slowly to make sense of texts or learn much information from them [7].

Teacher training transmits these ambiguities about reading. For example, Kenyan teachers are rarely taught how to teach reading and may even use whole word techniques for consistently spelled languages like Swahili; they are sometimes advised to focus on language development, picture recognition, inferences, and prediction [65]. Another result of ambivalence with respect to speed and practice is the design of grade 1 reading textbooks. They typically have big pictures, few pages, and small amounts of text, so children whose parents cannot afford books cannot get more practice [66].

The outcome of confused beliefs about reading acquisition is evident in the textbooks of many low-income countries (e.g., [67]). Students receive whole-word instruction without textbooks in an unknown language that has a complex orthography. It seems a bizarre way to teach reading, but all over Africa it happens every day.

With political will, this fundamental cause of the learning crisis can be mitigated in about two years. Given the time limitations of low-income students and schools, curricula might prioritize fluency. To help nearly all students attain automaticity, governments are advised to adopt synthetic phonics and teach reading in local languages whenever possible, since the latter are consistently spelled. Letters are to be taught one by one, with pattern analogies, plenty of practice opportunities, phonological awareness, and writing. Grade 1 textbooks should have well-spaced letters, should maximize text than pictures, and contain substantial amounts of text since no other reading materials exist to help achieve automaticity [66]. Reading in official languages

such as English or French might best be deferred until students have acquired automaticity in the same script. During the months that students are engaged in this process, the official language could be taught orally.

Some governments agreed to implement this advice, and school-level pilots showed greatly improved student performance compared to control schools: In Cambodia, performance improved from one year to the next in all measures. For example, letters by minute rose by over 100% (from 30 to 63 letters), words per minute by 63% (from 23 to 35 words), and comprehension by 70% (from 48% to 68% answers correct; [68]). In the Gambia, only 50% of the lessons were taught on average. Still, the percentage of first graders knowing at least 80% of the letters was 69% in the Pulaar language and 57% in Wolof (target was 85% of children [69]). Following six months of application in grade 2 in Egypt, word and text reading fluency rates doubled in comparison to rates obtained two years earlier (from 7 to 15 and from 11 to 21 words per minute respectively; syllable reading tripled from 10 to 28 syllables per minute). By contrast, the same measures in control schools improved only by about 27%. The percentage of students reading 0 correct words was cut by half in project schools (from 44% to 21%) while in control schools it improved only by 10% [70]. The Cambodian and Egyptian programs have been scaled up nationwide by the third year of implementation.

Learning research also helps predict and improve outcomes of teacher training. Poorly educated teachers have been hard to train, and methods imported from middle-income countries have given limited results [71]. Knowledge gaps may impede the retention of unfamiliar pieces of information, and efforts to bring consciously much material in mind may result in cognitive overload [72,73]. In addition, inservice training often is offered through intense brief courses given at training centers. Under such circumstances state-dependent learning and spaced learning research would predict limited recall for long-term use [74,75]. Thus when teachers return to their classrooms, the content may become a vague memory and without reviews, it may fade as work urgencies take over. However, observational learning research findings suggest that teachers may remember better to carry out activities they watched, particularly if they also visualized themselves executing them in class [76,77,78]. Thus, videoclips of the desired behaviors may effectively help train teachers of limited education. These and other learning concepts can help use donor funds more effectively when teachers are trained.

The need to execute effortlessly the building-block skills before engaging in more complex problems seems applicable at all educational levels. Methods that skip preliminary steps or assume that students will learn them rapidly on their own may succeed in teaching mainly those who are better off. Also methods that require little-educated teachers to make multiple rapid decisions and keep track of many items simultaneously may be abandoned. For governments this implies revision of curricula to ensure fluency in component skills, affordable textbooks for all students to facilitate formation of cognitive networks, use of classroom time for practice and elaboration of knowledge, training of teachers to engage students in relevant tasks, and remediation at public expense to those lagging behind.

To disseminate and apply these concepts on a large scale in lower-income countries, experts are needed who understand these principles in detail and can clearly enunciate them. But very few exist. The following section discusses the reasons and proposes some solutions.

2.2 Attracting Cognitive Scientists to International Development

Most studies exploring chunking, automaticity, working memory capacity, or conditions that optimize retention are old. Hundreds of publications from the 1940s to the 1990s explored elementary memory operations (See for example [79]). The findings have been taught in cognitive psychology courses for decades. Over time, research has specified variables better and measured them more exactly, while neuroimaging has succeeded in linking some cognitive functions to brain functions. Overall, the information processing framework remains valid.

This older body of research has considerable utility for low-income schools. Often nonsense words were used in order to limit knowledge about a subject, and in some ways the paradigms resemble the poor students' limited knowledge. For example, the relationship between instructional time and practice can be clarified by using the cognitive psychology experiments of that period (see for example, [80]).

For the education of high-income countries, however, elementary memory operations offer little added value. Students enter grade 1 with much academic knowledge and move quickly beyond basic skills towards issues of greater cognitive complexity [81]. With parents attentive to children's learning at home, the relationship between classroom time and outcomes becomes muddled. Thus fundamental topics such as chunking have become less interesting, and they get less space in cognitive science syllabi. And as complexity increases, the earlier paradigms may appear

simplistic. For example, Daniel Reisberg's 2001 edition of undergraduate cognitive science had informative illustrations of nodes and links of cognitive networks, but by the 2009 edition, they had been omitted [50,82]. Lack of opportunities in explaining and applying these concepts may make it hard for cognitive scientists to identify potential applications and advise low-income countries.

Psychologists may be leaving these concepts behind, but colleges of education have rarely taught them. Traditionally, educators and psychologists have rarely collaborated [83,84,85,86]. Faculties of education have constructed theoretical frameworks on the basis of practices and philosophies of educators such as John Dewey, Lev Vygotsky, Maria Montessori, or Paulo Freire. These luminaries exerted their influence before most cognitive research was carried out. Some contemporary educators discuss learning in terms of ultimate results, as in transformative learning [87, p. 3-4]. Specific or intermediate memory processes seemed to have been locked in a black box. Few know where to find the key, and there is limited interest in looking for it.

Moreover certain education professors express caution against cognitive science or neuroscience. Some believe that information processing is a reductionist framework that leads to narrow and mechanistic prescriptions [88,89,90,91]. Similarly certain textbooks that teach reading to university students caution against using cognitive science [92]. Such beliefs are inevitably transmitted to students who are the next generation of workers in international development. It is difficult to base justifications on concepts that specialists have learned to ignore.

To mitigate the learning crisis in low-income countries therefore, the challenge is considerable. The existence of building-block cognitive concepts must be demonstrated, often to skeptical audiences. The concepts must become attractive to teach in seminars or training events aimed at government or donor decisionmakers. Potential middle-class biases must be discussed diplomatically, and somehow decisionmakers must be trusted to remember and use explanations that run counter to their beliefs.

Thus solutions with a high payoff for the poor may be mired in perennial philosophical disputes among academics and lie unused. Arguably, the standards of higher-income countries create obstacles for the education of the marginalized.

Can cognitive scientists fill the needed role of learning specialists in international development? Graduates are relatively few and are usually absorbed in the job markets of higher-income countries. When they conduct research, it is funded by institutions as the National Science Foundation that are interested in topics pertinent to

high-income countries. So cognitive scientists are unfamiliar with donor agencies, and the latter are similarly unfamiliar with what cognitive scientists can do.

And the cognitive scientists who are interested in international development need preparation. They must become familiar with the learning needs of very constrained environments. It is hard for inexperienced people to conceive of students dropping out in grades 1-3 or of the need to make children literate by the middle of grade 1. There is a need to understand international development issues and the functions of various donor agencies. There would also be a need to function in foreign languages such as French, Portuguese, or Arabic. Coursework and internships in bilateral or multilateral organizations would fulfill these needs. Thus, interested professionals would become able to function as consultants or full-time staff of donor agencies or contractors.

Some cognitive scientists might collaborate productively with departments of comparative and international education. These departments focus mainly on sociocultural and economic issues of education across countries and offer no courses in learning. However, the faculty and students often conduct field research in low-income areas, sometimes observing classes for months in rural Sub-Saharan Africa. Joint research might be most useful in addressing priority topics on improving learning efficiency for the poor. And it may encourage international education departments to introduce coursework on learning.

3. PRIORITY LEARNING RESEARCH FOR LOW-INCOME COUNTRIES

The research on the building blocks of learning is broadly applicable to all humans, but the studies were mainly conducted with college students in the U.S. Findings are being used translationally to formulate hypotheses. However, new rigorous research is needed to unravel the learning issues that hold the very poor back at all stages of education.

Of primary importance are topics pertaining to the acquisition of automatized perceptual and performance skills by children and adults. Crucial are visual pattern recognition features that can help speed up literacy acquisition in children and unschooled illiterate adults [93,94]. To help determine the easiest methods to teach basic reading to nearly all students, parameters for chunking might also be developed, picking up where older research left off (e.g., [95]).

For fluent and effortless performance in basic math, there is a need to understand better how to develop the number sense and the Weber fraction of poor students, particularly given the limited instructional means of poorly resourced schools [96].

One risk of dropout in the early grades could be referred to as literacy attrition. If a student drops out soon after acquiring reading automaticity, is that lost? Research suggests that 6 year olds forget more information than 9 year olds [97]. But is automaticity as forgettable as episodic information? A 1986 study [53] found that Egyptians who dropped out fluent readers in grade 4 maintained and improved their skills, while those who could not read well forgot what they knew. As with language attrition, children may forget how to read, but the parameters are not known. Variables influencing the permanence of automaticity could be aggregate hours of practice, maximum reading speed attained, practice intervals, age at abandonment, or something else.

Countries with large numbers of languages are often advised to offer reading in a subset of languages that are used for regional communication. Residents often learn them from casual interactions, such as commercial transactions. Community learning is certainly important [98]. However, the parameters of learning languages from the environment are unknown. On average how much do students learn across time? How does language knowledge limitations affect their reading automaticity?

Some people ask why it is worth using a regional lingua franca rather than use English from the beginning. The consistent spelling seems to confer an advantage over English and French, so one small study showed benefits [99]. But how big are they and what are the costs? Languages are learned through interaction, so children cannot learn a language merely by watching TV [100, pp. 133–144]. However, does a broadcasting teacher in a class constitute an intermediate situation? These issues must be explored.

Students' knowledge is limited by teachers' information processing capacity. To succeed in training teachers who have limited education, many questions ought to be answered. For example, what are the most effective ways to improve teachers' automaticity in basic math calculations so that they can check students' work instantly and effortlessly? Insights are also needed on how many and how complex tasks these teachers can comfortably carry out and how to estimate these empirically. To use

observational learning protocols in teacher training, information is needed on the optimal "dosage" that would maximize the probability of executing in class the behaviors presented through videos.

Some officials expect that marginalized students will somehow learn acceptable skills despite scant instruction. To provide some realism, older studies of learning rates could be repeated with low-income populations. For example, what would be the lowest amount of time spent engaging in a task, and what would be the optimal distribution of practice sessions that would enable 85% of learners to attain reading rates of 60 words per minute in two school years? Similarly, what would be the minimum amount of time and optimal distribution that would enable 85% of the students to carry out correct arithmetic operations on 10 or more digits per minute in grades 1-3? [59]. The questions are not limited to primary education. For secondary or higher education students who have spent their school lives without textbooks (as in Mozambique), there is a need to research how to optimize the remaining time and teach efficiently the basic concepts they have missed. The contribution of technology must be studied from this perspective, though large-scale remediation programs have been limited.

An important advantage of engaging cognitive (neuro) scientists in this research is training in neuroimaging and instruments such as event-related potentials. To optimize instruction in difficult circumstances, it is insufficient to collect mere paper and pencil data. There is a need for eye trackers, experience sensing devices, or psychophysics displays. fMRI⁶ can be realistically used mainly in countries such as South Africa or India, but eye tracking and event-related potentials equipment have become portable. These would provide valuable insights in the workings of children who read and count under circumstances that have probably never been researched.

One difficulty with the needed research is that such studies have limited relevance to higher-income countries; therefore funding has been nearly impossible to get. However, donor agencies are becoming more interested in financing learning research. A partnership led by the World Bank has been developing parameters for various topics. It is hoped that suitable amounts of funding can become available. Research targeted on learning basics is urgently needed if the Education for All initiative is to succeed.

⁶ *Functional magnetic resonance imaging (fMRI).*

4. FUTURE PROSPECTS IN THE EDUCATION OF THE VERY POOR

The learning outcomes of the very poor clearly demonstrate why it is important for the donor community to understand better the principles of learning. Certainly, economic and other socioeconomic factors must be mitigated so that children can enroll, attend, and stay in school. But when children come to class, they must process information according to certain biologically determined requirements. One of them is a need to learn the fundamental components first and perform them with sufficient speed to undertake sequences of operations within the capacity limits of working memory.

In high-income countries, students usually get plenty of elaboration and practice opportunities, so they become adept at basic skills and can quickly progress to more complex tasks. Tackling more complex concepts may help students become more efficient learners, so the amount of information that higher-income students can abstract, organize, and retain increases exponentially [101]. But in low-income countries, the limited prior knowledge and instruction make it hard for learning rate to take off. Delays in acquiring the basics delay the acquisition of complex information. Limited practice with reading, writing, and math may make work slow and tedious and limit what children can achieve. Each operation may require extra milliseconds, and these add up. But operations must nevertheless be conducted inside a working memory window that has limited capacity. Thus, processing speed can affect whether a test item can be answered correctly, incorrectly, or just abandoned. Small but systematic differences in basic skills performance may add up over the grades and result in large performance differences between the higher and lower-income countries in international comparisons.

Differences in learning rate may explain to some extent the findings that the average child of lower-income countries performs at the 5th percentile of wealthier countries [13]. The score difference in PIRLS between Hong Kong and Morocco suggests that very roughly fourth graders in Hong Kong may get 150% more information than Moroccans, given an equivalent text and same timeframe. Fourth graders in Singapore may do roughly three times more arithmetic operations than fourth graders of Yemen.

Scores of tests like TIMSS are analyzed through sophisticated procedures and extensively discussed in various countries and the donor community. Much is made of the differences in international comparison tests, but insights about their evolution are

rather limited. Certainly home background is important, but in some respects it is distracting. Educational systems cannot educate homes; they must concentrate on what can be done in class.

The author has found a few cross-cultural studies on reaction-time [102]; but no studies have been found that tracked performance on variables leading to those test scores, such as response time to simpler and more complex tasks and amount of information retained over weeks or months of school. Possibly response times to simple reading passages and math operations could follow a logistic S curve, with low-income countries at the bottom. But without a good handle on information processing variables, government and donor decisionmakers find it hard to focus on the critical variables to improve during school. And without a valid causal chain, it is not easy to remedy deficits.

Intellectual leadership is therefore needed to explain issues convincingly and open new areas for research. Such leadership might best be provided by scientists who understand the how memory works. If governments focus curricula on the automaticity of small information chunks, the performance gap between the poorer and richer countries may be reduced. Without expertise on information processing, such an outcome is unlikely. Colleges of education produce legions of PhDs every year who lack the training to deal with information processing. And there is no evidence of imminent change in this respect.

Due to a lack of expertise, the education of the children who live on a dollar pay day may be compromised by the very people who aim to help them. Education specialists in low-income countries routinely design curricula that seem aimed at average rather than lower scores of international tests. The curricula cover large amounts of material, expect students to read several pages on their own per day, develop reading textbooks on the basis of whole-language methods, assume that students somehow have learned thousands of English and French words by grade 4, and leave much to the discretion of poorly educated teachers [103]. Therefore students get little if any exposure to the preliminary knowledge needed for learning the more complex materials. This is how middle-class standards may rob the poor of the scant learning opportunities that international donors put at their disposal with so much effort.

As things stand in 2013, the academic community that once generated the basic memory principles has moved on. But the mission to educate the millions of students who live on a dollar per day is barely underway. To serve them, we must

reintroduce the 20th century research pertinent to simpler cognition. Teaching and re-researching essential memory principles might produce better informed policies and learning outcomes. Without them, pouring billions of dollars into the budgets of low-income countries is tantamount to dropping food packages on isolated villages and hoping that some will fall into cooking pots. Disappointment may reduce donor investments or divert them from education to other sectors (See for example [104]).

The challenges to disseminate and apply these concepts are significant but if suitably prepared cognitive scientists become engaged, there is hope. To teach the poor efficiently and fulfill children’s UN right to education, human cognitive commonalities offer unique opportunities. In all countries, governments must offer students dense and well-connected networks of knowledge, with automatized basic skills. Thus human capital can be optimized worldwide. And some currently obscure psychological research can be shown to have worldwide implications.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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Dashkevich Ivan Semenovich,

Candidate of Pedagogical Sciences, Associate Professor,

Sholom-Aleichem Priamursky State University,

Serezhnikova Raisa Kuzminichna,

Doctor of Pedagogical Sciences, Professor,

Sholom-Aleichem Priamursky State University

Creative talent and its diagnostic

Дашкевич Иван Семенович,

кандидат педагогических наук, доцент,

Сережникова Раиса Кузьминична,

доктор педагогических наук, профессор, Приамурский

государственный университет имени Шолом-Алейхема

Креативная одаренность и методика ее диагностики

Задумываясь о перспективах развития общества, психологи и педагоги все серьезнее думают о выявлении творческих потенциальных возможностей человека, изучении часто скрытой одаренности личности. Эта проблема существовала всегда, однако сегодня четко обозначилось ее доминирование, в связи с востребованностью конкурентоспособных креативных специалистов на рынке труда.

Тем не менее, в большинстве исследований по данной проблеме отмечается, что на сегодняшний день трудно сформулировать выявления одаренности личности. Существует множество разнородных и противоречивых определений и их уровней. Соответственно, требования относительно характеристик одаренных личностей также разнообразны и не согласованы. Исследователи используют в основном концептуальные и операциональные определения творчества и способностей. А одаренность является понятием индивидуально-психологическим и, как утверждает Б.М. Теплов [1], проблема одаренности есть проблема прежде всего качественная, а не количественная.

Активизировались в последнее время исследования проблемы одаренности, однако они направлены в основном на изучение детской одаренности в разных видах деятельности или общей умственной одаренности личности (Ю.Д. Бабаева, В.Н. Дружинин, Н.С. Лейтес, Р.А. Семенова, М.А. Холодная, В.С. Юркевич, и др.) [1].

В понимании одаренности существует две позиции: максимальный количественный рост творческого потенциала личности и максимальный качественный рост творческих способностей [2]. Очевидно, одаренность как две стороны одной медали характеризуется максимальным количественным и качественным креативным ростом. Это не сумма творческих способностей, а новое интегрирующее и динамически развивающееся качество, включая духовное, интеллектуальное и эмоционально-интуитивное богатство личности, способной создавать субъективно или объективно новое в материальной и духовной сферах [2].

Необходимо отметить, что нет общей точки зрения на определение «одаренности» в любом возрасте, но в дошкольном и школьном возрасте одаренность связывается в первую очередь с быстрым темпом развития в одной или более областях знания. Как правило, дети которые опережают в развитии своих сверстников на одну четвертую или половину своего возраста, могут считаться одаренными (пример, в интеллектуальном развитии опережает развитие сверстников на год или два) [3].

Одаренность имеет различные толкования.

По мнению Н.А. Менчинской, одаренность – это системное, развивающееся в течение жизни качество психики, которое определяет возможность достижения человеком более высоких (необычных, незаурядных) результатов в одном или нескольких видах деятельности по сравнению с другими людьми [4].

Одаренность, как предпосылка гениальности, характеризуется высоким уровнем развития каких-либо способностей (Н.Ф. Вишневская) [3].

Выделяется интеллектуальная (умственная) и художественная одаренность; одаренность в сфере социальных отношений (управленческая и творческая (креативная) как высший уровень способности к созданию оригинальных и новых идей и продукта. Интеллектуальная (умственная) одаренность проявляется в наличии глубоких знаний во всех видах избирательной деятельности. Одаренные дети - это дифференцированное понятие. Одни исследователи считают, что все дети одаренные, другие, что только 3% действительно ода-

ренные, которые определяют динамику развития общества. Это будущие лауреаты Нобелевской премии.

Д.Б. Богоявленская вводит понятие креативной активности личности. По её мнению, креативная активность присуща креативному типу личности с особой психической структурой. Творчество, с точки зрения Д.Б. Богоявленской, это ситуативно не стимулированная активность, проявляющаяся в стремлении выйти за пределы заданной проблемы [5].

В избирательной для личности сфере деятельности, как отмечает Н.Ф. Вишнякова, с созданием оригинальных новых идей и продуктов проявляется креативная одаренность. Это своеобразное сочетание творческих способностей, дающее возможность успешно и оригинально выполнять интересующий вид деятельности, который оценивается высшим нестандартным результатом. Креативная одаренность связана с экстраординарной конгруэнтностью интеллектуальной успешности и духовным богатством, своеобразным личностным феноменом, базирующимся на индивидуальных когнитивных и креативных ресурсах личности [3].

По мнению Р.К. Серёжниковой, одаренность, как «дар» природы, выступает в качестве творческого потенциала и предпосылки таланта. Она бывает актуализированная в реальной жизни в определенной сфере деятельности и латентная или скрытая одаренность, которая еще не проявилась у личности. Скрытая одаренность является ресурсной сферой личности, как ростки необычного личностного роста [2].

Креативная одаренность характеризуется необычной личностной структурой, в которой ярко проявляются высокий уровень оригинальности, интуиции, ассоциативности восприятия, воображения и эмпатийности. Эти личностные особенности составляют основу креативного потенциала одаренности. Труднее исследовать скрытую креативную одаренность, которая не ярко проявляется в каком-либо виде деятельности. Именно творческий потенциал составляет ядро креативной одаренности, как внутреннюю предпосылку развития одаренности. Она включает не столько высокие интеллектуальные возможности, сколько глубоко развитую неосознаваемую сферу личности: интуицию, воображение, эмпатию и т.д.

Прикладная одаренность как вид креативной одаренности чаще всего встречается в реальной жизни, однако меньше всего исследуется учеными.

Роберт Стенберг, психолог Йельского университета, изучая «практическую одаренность», писал, что она не рассматривается как одаренность. Практическая одаренность достаточно редко проявляется в школьном периоде развития личности из-за предметной ограниченности многих видов практической деятельности [1].

Иногда креативные способности к практической деятельности превышают способности к научной или наоборот, и создавая, школьник часто не может облечь созданное в вербальную форму из-за неразвитых языковых возможностей, что приводит к ошибочным суждениям о его умственном развитии.

Тем не менее, акцентируем, что одаренность проявляется в разных видах деятельности и выражается в достижении социально или лично значимого нового оригинального результата. Умственная одаренность измеряется созданными тестами для изучения интеллекта.

При этом, креативность – это не то же самое, что высокий уровень интеллекта. Исследования показали, что оценка интеллекта традиционными методами не позволяет непосредственно судить о творческих возможностях. «Творчество» означает прежде всего особый склад ума, особое качество умственных процессов [4].

Итак, креативная одаренность проявляется в нестандартном видении мира и нешаблонном мышлении, а поэтому, как было сказано, выявляется не количественно, а качественно. Поэтому оценка ребенка как одаренного не должна являться самоцелью. Выявление одаренных детей необходимо связывать с задачами их обучения и воспитания, а также с оказанием им психологической помощи и поддержки.

На наш взгляд, в качестве методики диагностики креативной одаренности можно использовать метод текстового контроля, предложенный В.П. Беспалько, позволяющий определить уровни усвоения знаний, оценить развитие интеллектуальных умений, что обеспечит необходимую диагностичность, точность и воспроизводимость [6].

В методике В.П. Беспалько выделил 4 уровня обучения. Первый и второй уровни репродуктивные. Первый уровень характеризуется умением обучаемых правильно воспроизвести учебный материал. Второй уровень характеризуется умением школьников выполнять задания в стандартных ситуациях, решать типовые задания по ранее усвоенному алгоритму. Для третьего уровня, продук-

тивного, характерно умение школьников с большой долей самостоятельности выполнять сложные задания в нестандартных ситуациях. Для четвертого уровня характерно умение учащихся решать самостоятельно нетиповые задачи и выполнять задания оригинальными способами в нестандартных условиях, с привлечением дополнительных знаний, умение перенести полученные ранее знания на решение новых задач, новых проблем. Это уровень творчества [6]. По нашему предположению, данный уровень может диагностировать проявление креативной одаренности детьми.

Методика В.Н. Беспалько была взята за основу при составлении тестовых заданий. При этом в тестах IV уровня не должно быть готового эталона решений и о качестве знаний следует судить по оригинальности ответа, умению оперировать знаниями. Мониторинг оценки знаний необходимо вести по уровню, соответствующему цели обучения.

Исходным в мышлении являются мыслительные операции. Поэтому проявление креативной одаренности учащихся выявлялось с помощью технологии определения уровней сформированности мыслительных операций, в процессе разработки которой использовали идею Н.Н. Поспелова и И.Н. Поспелова [7], об анализе, который в формальной логике рассматривается как движение мысли от целого к его неразложимым элементам, в диалектической – как исследование происхождения предметов, изучение их взаимодействия и противоречий. Суть ее в том, что уровень сформированности мыслительных операций определяется по характеру логических ошибок, допускаемых школьниками при выполнении соответствующих заданий. Такой подход позволяет объективно определить уровни сформированности конкретных мыслительных операций, проанализировать ошибки, допускаемые школьниками при выполнении мыслительных действий. Рассмотрим на примерах диагностики сформированности некоторых мыслительных операций.

Для проверки сформированности операций анализа и синтеза обучаемым предлагается прочесть статью (рассказ) с последующим выполнением задания: пересказать содержание статьи (рассказа); выделить главное; сформулировать 2-3 вопроса по содержанию статьи (рассказа); отметить спорные утверждения (если они есть); высказать личное мнение о статье (рассказе) [8].

Анализ ответов проводится по схеме:

Первый уровень – пересказ почти целиком составлен из предложений подлинника, очень подробный, без выделения главного. Вопросы не отражают суть статьи (рассказа).

Второй уровень – пересказ статьи по абзацам с незначительной обработкой предложений. Не все вопросы подтверждают суть статьи.

Третий уровень – пересказ главных разделов статьи с включением других примеров и комментария. Вопросы отражают суть статьи.

Четвертый уровень – изложение основных разделов статьи с некоторыми замечаниями критического характера. Соотнесение заголовка с содержанием статьи, определение главной идеи статьи. Вопросы отражают суть статьи.

Для определения уровня сформированности операции сравнения школьникам можно предложить задания на сравнение объектов либо понятий (на материале любой учебной дисциплины). Судить о степени сформированности операции можно по следующим показателям: объем сравнения (достаточное число признаков сходства и различия сравниваемых объектов); характер основания сравнения (сравнение может проводиться по случайным, не существенным или малосущественным признакам и по существенным признакам); способ проведения сравнения; степень понимания сути сравнения.

Эти четыре критерия характеризуют различные уровни сформированности операции сравнения у школьников. Анализ работ проводится по схеме:

Первый уровень – ученик не понимает сути сравнения. Называет случайные и лишь некоторые признаки объектов без попыток их сопоставления и противопоставления. Производит рядоположенное описание ограниченного числа признаков объектов по случайным признакам, либо констатируя различное и сходное, путает их между собой, называет недостаточное число признаков и не может выделить из них существенные.

Второй уровень – ученик вместо сути операции называет объекты или их признаки, или дает определения объектов, признаки дает в достаточном, но не полном объеме, проводит отдельное сопоставление и противопоставление объектов по несущественным признакам.

Третий уровень – ученик осознает сходство и различие объектов, проводит планомерное полное сравнение по существенным признакам, выделяя признаки в полном объеме.

Четвертый – ученик правильно понимает суть операции, проводит планомерное обобщающее сравнение по обобщенным и существенным признакам. Осуществляет перенос усвоенного приема при изучении нового учебного материала из других учебных дисциплин.

Реализация методики диагностики креативной одаренности учащихся выявила корреляционную зависимость между целенаправленным развивающим обучением и формированием мыслительных операций, что способствует более успешному переходу школьников с I на II уровень овладения этими интеллектуальными умениями, но в меньшей степени осуществляется переход на III и IV уровни, то есть на продуктивный и творческий уровень, что, подтверждает качественный, а не количественный уровень проявления дивергентного мышления. В соответствии с результатами диагностирования творческих уровней усвоения достигает 14% -16% обучаемых, причем результаты практически совпали по обеим методикам (В.П. Беспалько и Н.Н. Поспелова) [8].

Можно резюмировать, что систематическое применение учащимися мыслительных операций (интеллектуальных умений) в учебной деятельности становятся инструментом приобретения знаний – приемами умственной деятельности, что способствует более качественному усвоению знаний, но не актуализации творческого потенциала детей.

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Podbereznykh Inna,

Petro Mohyla Black Sea State University, Associate Professor,

Candidate of Historical Sciences, Faculty of Political Sciences

Historiography analysis of regional diplomacy of countries South-East Asia

Підберезних Інна,

Чорноморський державний університет ім. Петра Могили, доцент,

кандидат історичних наук, фак. політичних наук

Історіографічний аналіз регіональної дипломатії країн Південно-Східної Азії

Сучасний стан міжнародних відносин характеризується динамічними змінами та непостійністю структурних зв'язків. Глобалізаційні виклики XXI століття – вразливість фінансово-економічної системи, мультиполяризація світоустрою, «демократизація» політичного простору та транснаціональні загрози (міжнародний тероризм, проблеми екологічного та техногенного характеру, – спотворюють систему міжнародних відносин та її основні компоненти, викликаючи тим самим постійні зміни всередині регіональних та субрегіональних об'єднань. Примітно, що інтеграційні процеси в Південно-Східно-Азійському субрегіоні до цього часу розвивалися в умовах постколоніалізму, де основна увага була приділена подоланню недоліків та проблем постколоніальної системи. В українському та світовому дискурсі міжнародних відносин і політичних наук регіон Південно-Східної Азії, на жаль, не належить до пріоритетних тем дослідження і не часто привертає увагу науковців, політологів, міжнародних аналітиків і експертів. І це попри те, що країни Південно-Східної Азії стають дедалі важливішими акторами на міжнародній арені.

Актуальність дослідження полягає передусім у тому, що аналіз проблем інституційних механізмів політичної стабільності в Південно-Східній Азії може мати як загальне теоретичне, так і практичне значення для

формування зовнішньополітичного курсу України, зокрема для вироблення стратегії нашої держави щодо розвитку тісніших економічних відносин із країнами Південно-Східної Азії. В світовому політологічному дискурсі досі немає комплексних досліджень особливостей розвитку країн Південно-Східної Азії, їхніх проблем і успіхів, зокрема успішного інституційного прориву в сфері економічної співпраці та регіональної безпеки.

Метою статті є аналіз існуючого історіографічного надбання світових та вітчизняних дослідників, які зосередили свою увагу на проблемах Південно-Східної Азії.

Досягнення мети вимагає розв'язання таких завдань: з'ясувати основні передумови та проаналізувати визначальні фактори регіональної співпраці країн Південно-Східної Азії, та охарактеризувати сучасний стан історіографічних досліджень з приводу цього питання.

Питання становлення й розвитку АСЕАН, сучасний стан інтеграції країн Південно-Східної Азії, а також безпекова політика АСЕАН в Азійсько-Тихоокеанському регіоні є важливими напрямками дослідження серед зарубіжних сходознавців та політологів-міжнародників. Фундаментальний аналіз і оцінки були надані в роботах А. Ачар'ї [14], Ю. Хаакє [16], Р. Еммерса [17]. Найбільш значущим науковим доробком є роботи А. Ачар'ї, які охоплюють величезний спектр питань та проблем, що відносяться до субрегіону Південно-Східної Азії. Так, А. Ачар'я в своїй роботі «Формування безпекової спільноти в Південно-Східній Азії: АСЕАН та проблема побудови регіонального порядку» аналізує історію створення й еволюції АСЕАН, сучасний стан політико-економічних відносин в Південно-Східній Азії, акцентуючи увагу на нормативній та ідейній складових організації.

Р. Еммерс зосереджує увагу на питаннях інтеграції держав субрегіону в умовах Азійської та Світової фінансової кризи [17], проблемах, які пов'язані з транснаціональними викликами, що постали перед АСЕАН в епоху глобалізації, суперечкам довкола територіальних конфліктів в Південно-Китайському морі тощо. В своїй статті «Зміна балансу сил в Південно-Китайському морі: наслідки для вирішення та попередження конфліктів» австралійський дослідник вдало акцентує увагу на ролі АСЕАН і Регіонального Форуму АСЕАН в якості дієвого інструменту попередження конфліктів в Південно-Китайському морі.

Теоретичні й практичні підходи щодо аналізу сучасного стану та перспектив еволюції АСЕАН в XXI столітті були висвітлені в роботах російських науковців та сходознавців. Одним з найбільш відомих наукових доробків є колективна праця «АСЕАН в начале XXI века: актуальные проблемы и перспективы» під редакцією Л.Е. Васильева [2]. В цій монографії детально проаналізовано поточний стан політичного, економічного та соціокультурного розвитку організації, враховуючи посилення інтеграції країн АСЕАН в XXI столітті.

В наукових роботах вітчизняних дослідників Південно-Східно-Азійського субрегіону та Азійсько-Тихоокеанського регіону особливу увагу приділено питанням політико-економічної інтеграції в межах системи, факторам формування і тенденціям розвитку безпекової політики в азійському регіоні, соціокультурним трансформаціям в Південно-Східній Азії тощо. Варто виділити наукові праці Н.М. Городньої [4], О.В. Шевчука [12], Л.О. Лещенка [8] та інших. Питанню активізації економічної інтеграції країн АСЕАН приділено увагу в статтях Н.М. Городньої «Піднесення економік країн Південно-Східної Азії в другій половині XX ст. та активізація азіацентричних тенденцій», «Інтеграційні процеси в Азіатсько-Тихоокеанському регіоні на зламі XX-XXI ст.: основні тенденції та перспективи». У роботах О.В. Шевчука «Система безпеки Азійсько-Тихоокеанського регіону: фактори формування та тенденції розвитку» й М.М. Комарницького «Інституційні механізми забезпечення політичної стабільності в Південно-Східній Азії» було зазначено про важливість формування азійської безпекової системи, яка базується на принципах транспарентності та превентивної дипломатії, задля подолання існуючих регіональних конфліктів. Межі соціокультурної трансформації ареалу країн Південно-Східної Азії були досліджені в роботі вітчизняного сходознавця Л.О. Лещенка «Модерністсько-традиціоналістська парадигма соціально-економічних перетворень у країнах Південно-Східної Азії».

Виходячи з аналізу наукових напрацювань зарубіжних та вітчизняних дослідників Південно-Східно-Азійського субрегіону, можна виокремити декілька концептуальних підходів щодо дослідження сучасних міжнародних відносин в Південно-Східній Азії: 1) аналіз економічної інтеграції держав ПСА в межах АСЕАН й економічний розвиток організації в цілому; 2) дослідження питання формування безпекової системи в Азійсько-Тихоокеанському регіоні за участю

провідних безпекових інститутів АСЕАН; 3) оцінка й аналіз соціокультурних трансформацій в ареалі країн ПСА в умовах посилення Вестернізації та «демократизації» як похідних глобалізації.

Українські науковці приділяють незначної уваги питанню представлення політико-економічних інтересів України в країнах Південно-Східної Азії та АСЕАН. Географічна віддаленість, незначний товарообіг з державами азійського регіону, а також двовекторна спрямованість української політичної еліти («європейський» та «євразійський» напрямки) не сприяють популяризації «азійського» вектору зовнішньої політики України поміж представників уряду та наукових дослідників. Серед переліку вітчизняних досліджень за напрямком визначення та аналізу проблем і перспектив представлення національних інтересів України в Південно-Східній Азії варто відмітити наукові праці С.М. Шергіна [13], А.З. Гончарука [3], М.М. Комарницького [7], та ін.

Отже, можна цілком позитивно оцінити внесок українських науковців у вивчення та аналіз проблем і перспектив представлення національних інтересів України в країнах ПСА, цілком очевидно, що це питання недостатньо розглянуто та проаналізовано. Зокрема, це відсутність будь-яких досліджень щодо кооперації та взаємодії між Україною та АСЕАН. Враховуючи важливість створення проекту Спільноти АСЕАН-2015, недооцінка українськими фахівцями та урядом потенційних векторів співпраці з цим інтеграційним об'єднанням є серйозним недоліком. Більше того, беручи до уваги нещодавні події, пов'язані із зовнішньою агресією по відношенню до України, постала необхідність переоцінки й пошуку нового підходу щодо визначення альтернативного до європейського вектору зовнішньої політики України.

Дослідженню проблем висвітлення історіографічного надбання з приводу сучасного стану міжнародних відносин країн Південно-Східної Азії було присвячено праці багатьох іноземних та вітчизняних науковців, політологів, аналітиків і експертів. Під час написання статті було використано статті відомих дослідників питань регіональної політики країн Південно-Східної Азії, котрі всебічно та обґрунтовано виклали погляди на інтеграційні процеси в Південно-Східній Азії та визначили роль найвпливовіших регіональних інституцій у цих процесах.

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Irina V. Belonosova,

Krasnoyarsk State Institute of Arts, Docent,

Candidate of Art Criticism

The fate of classical music in the northeast Asian region: sources

Белоносова Ирина Владимировна,

Красноярский государственный институт искусств, доцент

Судьба академической музыки в североазиатском регионе: истоки

Актуальность темы. Цель. Задача

На просторах Азии, в ее северной части располагается обширный географический регион – Сибирь. Не вызывает сомнения, что в настоящее время на территории Сибири сконцентрирован значительный творческий потенциал. Омск, Томск, Новосибирск, Красноярск, Иркутск стали городами, в которых активно развиваются традиции академической музыки. В оперных театрах и филармониях Новосибирска, Красноярска, Якутска, Улан-Удэ набирают силы новые тенденции, связанные с укреплением международных связей с исполнителями, дирижерами, коллективами мирового уровня. Исследования музыкальной культуры Сибири, в том числе и традиций академической музыки, были начаты в первой половине 1960-х гг. Формирование в Новосибирской консерватории, а затем в Красноярском институте искусств кафедр истории и теории музыки способствовало подготовке значительного корпуса музыковедов, чьи интересы направлены на изучение истории академической традиции в Сибири. В первую очередь это Т.А. Роменская [1, 2] и И.Ю. Харкеевич [3].

Географический фактор сыграл немаловажную роль в становлении и развитии музыкальной культуры европейского типа на территории, которая по климатическим, природным, социально-экономическим условиям значительно

отличается от европейской. Удаленность от культурных центров России, неравномерность заселения обширных территорий привели к тому, что цивилизационные процессы, связанные в первую очередь с урбанизацией, в Сибири наметились только во второй половине XVI в. Сельское население преобладало, большинство сибиряков проживало в деревнях. Значительный рост городов сопровождал весь период строительства Транссибирской магистрали на рубеже XIX –XX вв.

Цель статьи – рассмотреть первые признаки развитой городской музыкальной культуры в сельских по своей характеристике поселениях Сибири в период отсутствия развитой городской инфраструктуры до начала строительства Транссибирской магистрали.

Основная задача – показать уникальность начального периода формирования академических традиций в Сибири в начале XIX в.

Истоки формирования городской музыкальной среды

В начале XIX столетия первые очаги городской музыкальной культуры возникли благодаря деятельности сосланных в Сибирь декабристов и их жен. Всего после восстания 1825 г. на каторгу было сослано 120 человек дворянского сословия. Среди сосланных в Сибирь декабристов и последовавших за ними жен были потомки древних дворянских родов: генерал-майор, князь (потомственный князь из рода Рюриковичей) С.Г. Волконский; князь С.П. Трубецкой; полковник В.Л. Давыдов (из рода Давыдовых, его мать Е.Н. Самойлова – племянница князя Потемкина); княгиня М.Н. Волконская (урожденная Раевская), княгиня Е.И. Трубецкая (урожденная графиня Лаваль), княгиня А.Г. Муравьева (урожденная графиня Чернышёва). 11 жен декабристов и 7 женщин (матери и сестры), последовавшие в Сибирь, всеми силами старались скрасить быт своих близких. А.Г. Муравьева, рискуя своей свободой, везла в 1828 г. в Читинский острог «Послание» А.С. Пушкина.

В Читинском остроге ссыльным декабристам разрешили построить два небольших дома. В одном из них стояли рояль и фортепиано. Впервые в исполнении декабристов в Чите зазвучали хоровые произведения, вокальные и инструментальные ансамбли. Среди музыкантов-любителей были девять владеющих фортепиано, пять певцов (два баса, три тенора). Играли на различных инструментах: 1 – на флейте, 2 – на скрипке, 1 – на виолончели. 2 были

хормейстерами, 4 декабриста сочиняли музыку, 2 – стихи к песням. Вскоре декабристы организовали в Читинском остроге первый хор с группой солистов под руководством П.Н. Свистунова, струнный квартет во главе с Ф.Ф. Вадковским, дуэты – вокальные и инструментальные. Слушателями первых концертов были не только сами ссыльные, но и охранявшие их простые солдаты, местные жители [4].

Первым культурным центром Восточной Сибири до переезда в Иркутск – тогда центр Иркутской губернии – стало местечко Урик под Иркутском. Его местные жители называли «столичкой декабристов». Одной из отличительных особенностей сибирской жизни декабристов была их осведомленность о том, что происходило в России и за границей. Супруги Юшневские могли, например, судить о достоинствах фортепиано различных фирм, просили прислать заинтересовавшие их новые ноты. Они знали, с какой программой выступала в Петербурге madame Bellenile Oury, на каком инструменте в своем последнем концерте в Лондоне играл пианист И. Мошелес [3].

В Иркутском областном архиве хранятся собственноручные расписки М.Н. Волконской, И.М. Муравьева, А.М. Муравьева, Б.Ф. Вольфа и М.С. Лунина в получении разнообразных книг, журналов и газет. Часто на имя М.Н. Волконской с почтой приходили посылки с нотами. Среди них в феврале 1838 г. указан клави́р оперы Г. Доницетти «Лукреция Борджиа» [3, с. 98]. Опера итальянского композитора всего через пять лет после ее создания (1833) становится достоянием людей, живущих в глухом сибирском селе!

Дома Волконских в Иркутске и Давыдовых в Красноярске, где они стали жить на поселении после каторги, были первыми салонами в сибирских городах, где проводились музыкальные и литературные вечера [2]. Старший брат М. Раевской Александр, зная о ее пристрастиях к музыке, в 1831 г. специально прислал в Иркутск рояль фирмы «Lichtenthal». Отреставрированный рояль звучит и в наши дни на традиционных декабрьских вечерах «Ночи в музее» [5].

На слушателей домашних концертов оказывал влияние, прежде всего, репертуар декабристов: симфонии Л. Бетховена в переложении для фортепиано, мазурки Щопена, «Песни без слов» Ф. Мендельсона, «Фантазия» Риса для скрипки, ансамблевая музыка (квартеты, скрипичные дуэты и др.), песни Ф. Шуберта, французские и русские романсы, фрагменты из опер К. Глюка,

В. Моцарта, Э. Мегюля, Д. Россини, в том числе из «Вольного стрелка» К. Вебера [1, с. 211].

В Красноярске «в сферу музыкального воздействия декабристов входили и высшие слои общества: «чиновничья сибирская аристократия» и богатое купечество» [1, с. 204].

В 1840 г. в Иркутске генерал-губернатор Восточной Сибири Вильгельм Руперт становится инициатором создания учебного заведения по подобию Смольного института. Устав первого в Сибири Девичьего института был одобрен в 1842 г. К этому учебному заведению непосредственное отношение имели проживающие в Иркутске декабристы: здесь учились их дети родственницы (дочери Трубецкого, Раевского, племянница Ивашева), сюда поступали подготовленные ими воспитанницы-сибирячки (дочери селенгинского купца Д.Д. Старцева, которых готовил к поступлению проживающий в их доме И.А. Бестужев). С 1848 по 1858 г. во главе института стояли женщины образованные и культурные, принадлежащие к близкому декабристам окружению: К.К. Козьмина (была наставницей детей декабристов, проживающих в Иркутске), М.А. Дорохова, Е.П. Липранди. М.Н. Раевская, в свою очередь, выписывала ноты для хора воспитанниц. Популярностью среди иркутян пользовались не только выпускные концерты, но и репетиции концертов, а также своеобразные балы, которые устраивались в институте [3, с. 125].

В других городах Сибири декабристы также внесли свой вклад в становление музыкального образования. В Ялуторовске М.И. Муравьев-Апостол занимался с детьми по образцу: пение – слушание музыки — танцы. Самым значительным вкладом декабристов явилось создание музыкальных школ в Петровске-Забайкальском и Тобольске.

Заключение

За годы, проведенные на каторге и в ссылке (1826-1856), декабристы смогли создать настоящие очаги культуры в местах пребывания, формируя вокруг себя особый «культурный слой», ставший затем основой для дальнейшего продвижения сибирского общества к «высокой» культуре. Академическая музыка функционировала в узком кругу представителей дворянского сословия, которые во время ссылки были лишены всех привилегий. В условиях сибирской ссылки, где отсутствовали жесткие нормативы светских

музыкальных салонов, на которые не допускались представители «низшего сословия», выступления декабристов стали первой демократической формой концертирования. Тем самым значительно сокращалось «время» освоения музыкального языка, жанровой сферы академической музыки в условиях отсутствия государственной поддержки в формировании музыкальной культуры сибирских городов.

Музицирование в домах декабристов представляло собой одну из первых форм концертной жизни в Сибири, а частные уроки декабристов предшествовали формированию первых учебных заведений, где проводились музыкальные занятия.

Исследование истоков академической традиции в Сибири позволяет расширить представления о специфике функционирования форм музыкального искусства европейской традиции в условиях североазиатского региона на раннем этапе формирования городской музыкальной среды. Пример деятельности декабристов в Сибири демонстрирует уникальный факт «переноса» из аристократической среды в крестьянскую в своей основе культуру традиций европейской академической музыки.

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I. Pospelova,

*Post-Graduate Student of the Institute of Legislation
of Verkhovna Rada of Ukraine*

Election Legislation of Ukraine Concerning Pre-Election Campaign: Prospects of Improvement

Abstract: The article provides the investigation of the election legislation of Ukraine, particularly the normative regulation of pre-election campaign as an election process phase. The author analyses certain provisions of election laws of Ukraine concerning the usage of modern information technologies, Internet resource and regulation of printed media activity. The latest election practice having been taken into consideration, there have been given suggestions as for improving legal regulation of the pre-election campaign by the election process subjects.

Keywords: election legislation, pre-election campaign, legal responsibility, mass media, Internet resource.

The issue of the electoral legislation improvement amid further democratization of social relations gains particular weight and importance. Since the analysis of the formation of the national electoral legislation shows that nowadays there is a tendency to the chaotic accumulation of regulations, which, in its turn, confirms the lack of consistent affirmation and assurance of the electoral rights and freedoms. Based on the problem of imperfect legal regulation of the constitutional and legal relations in the electoral law, as well as an objective need for a comprehensive solution of urgent problems that emerge during the election process, we can state that the Election Legislation of Ukraine does not meet the requirements of modern society and international election standards, develops inconsistently under the influence of random factors; on the one hand, it does not respond to the urgent problems, on the other hand – it is impossible to use it in practice.

Domestic constitutional and legal science has significant scientific achievements in the study of the elections theory and practice. This is confirmed by studies of such domestic scientists and constitutionalists as Yu. Barabash, A. Batanov, Yu. Bysaha, D. Bielov, A. Boryslavska, A. Georgitsa, S. Holovaty, Yu. Kly-

uchkovsky, R. Knyazevich, A. Kolodiy, P. Lubchenco, A. Todyka, A. Frytskyi, M. Tsvik, V. Shapoval and others. Scientific development of campaigning issues as a stage electoral process can be found in the works of Ukrainian and Russian scholars such as L. Ahleyeva, V. Krupin, M. Stavniychuk, A. Mehera, M. Khachaturov, V. Fal-kov and others.

Apparently, nowadays the leading scientists and constitutionalists of Ukraine see elections not only as a public and legal issue, but also as political one, which is related mainly to the task of formation of a civilized civil society in Ukraine [1, 34].

In addition, the election method of forming the state bodies, as rightly pointed by A.V. Rostovtsev, characterizes democratic structure of the state and society, ensures the implementation of the principle of national sovereignty and a direct connection between the state and a person [2, p. 18].

In our opinion, such relationship is possible by clearly providing voting rights and establishing their safeguards, especially the right to pre-election campaign, compliance by the election process entities with the rules concerning restrictions and prohibitions on the pre-election campaign, establishing a clear legal responsibility for the violation of such restrictions and prohibitions with parallel prohibition of abuse of the law during the pre-election campaign, introduction of legal mechanisms to prevent illegal and manipulative election technologies, promotion of NGOs' activities by the state and support to public initiatives regarding proper information to citizens during the election process, encouraging the formation of their legal culture, introduction of public TV and radio broadcasting.

It should be noted that the pre-election campaign as a stage of the election process in the election in Ukraine is regulated legally by a large array of regulations, including the electoral laws of Ukraine, Resolutions of the Verkhovna Rada of Ukraine, Clarifications of the Supreme Court of Ukraine, etc., which, in turn, leads to ineffective regulation of constitutional and legal relations in this area. In view of this, one of the most important tasks of legislative activity is to improve the existing legal framework and systematize it directly, through a codified regulation that would regulate all types of elections in Ukraine. Thus the conceptual unity will be achieved between existing regulations, tracks and gaps that occur during the election process will be eliminated and addressed.

It should be noted that the legislator determines pre-election campaign as social and legal activities and points out that the pre-election campaign can be

carried out in any form and by any means, not contradicting the Constitution of Ukraine and laws of Ukraine, namely: 1) public meetings, other meetings with voters; 2) rallies, marches, demonstrations, pickets; 3) public debates, discussions, "round tables", press conferences concerning the provisions of the election programs and political activities of political parties - electoral process entities or the political activity of MP candidates; 4) publication in print and audiovisual (electronic) media of political advertising, speeches, interviews, essays, videos, audio and video clips, other publications and messages; 5) distribution of election leaflets, posters and other printed campaign materials or publications that contain pre-election campaign materials; 6) placement of printed campaign materials or political advertising on outdoor advertising media; 7) concerts, plays, sporting events, film screenings and television programs or other public events supported by the party - the electoral process entity or the MP candidate, as well as disclosure of such support; 8) public appeals to vote for or not to vote for the party - the electoral process entity, MP candidate or public assessments of these parties' or candidates' activities; 9) setting up the pre-election campaign tents; 10) in other forms that do not contradict the Constitution and laws of Ukraine [3].

Last election processes in Ukraine indicate that violations of election legislation often occur during campaigning, carried out mainly through the media.

So far the electoral laws have actually established "two-step" procedure for legal responsibility of the media: 1) discovery of dissemination of deliberately false information by the media by the court order in consideration of private law dispute; 2) consideration by the court in the election dispute the issue of the legal responsibility applicable to the media, provided for by the requirements of the election legislation. As noted in the legal literature, in connection with the procedure "complexity", lawmakers should review the feasibility of certain restrictions on campaigning, taking into account the specific nature of the legal violations [4, 278].

Therefore, as part of the paper, we shall focus on certain regulations. According to p. 11, Art. 74 of the Law "On Elections of People's Deputies of Ukraine", should the court when considering the election dispute establish multiple or a single gross violation by the media of this Law, the court shall decide on temporary (until the end of the election process) suspension of the license or temporary ban (until the end of the election process) on issue of the printed media. Previously, it could have been made at the submission of the CEC or the DEC to the appropriate media. P. 7,

Art. 56 of the Law on Local Elections in the previous version contained a similar provision, but on local mass media (currently, there is no such provision). In our opinion, in this case, the use by the legislator of the evaluation term "gross violation" leaves a very wide margin for discretion of the court.

Meanwhile, pursuant to p. 4., Art. 64 of the Law "On Elections of the President of Ukraine", the national and municipal mass media, their officers and officials and creative workers, during the election process in their materials and programs not covered by agreements concluded in accordance with this Law, may not campaign for or against candidates for the President of Ukraine, evaluate their election programs or give them an advantage in any form. Violation of this requirement provides for the possibility to suspend activities of these media by the court decision at the submission of the CEC or the appropriate DEC. We consider it appropriate to amend these provisions of the Law "On Elections of the President of Ukraine" regarding the possibility of application of the said sanction (instead of the temporary ban of media activity - suspension of the license, etc.). It should be taken into account that a legislative wording enables the election commission to use the right to send submissions to the court at its discretion. But we should not forget that the election commissions are the collegial bodies and their resolution depends on the subjective views of the Commission members [5, 88].

In accordance with p. 19, Art. 64 of the Law "On Elections of the President of Ukraine", if the CEC or DEC receives statements, complaints about violations of certain paragraphs, namely paragraphs 3, 6, 10-18 of Art. 64 of the Law (restrictions on pre-election campaign), the relevant Election Commission shall immediately transfer this statement or complaint to the appropriate law enforcement authorities to check and respond according to the laws of Ukraine. The Law of Ukraine "On Elections of People's Deputies of Ukraine" indicates the urgent referral of the CEC or DEC to the law enforcement authorities in violation of any of the 26 paragraphs of Art. 71 (restrictions on pre-election campaign), provided that there is evidence of a crime or administrative offense.

When placing the information at their own expense in the media, it is important to more clearly regulate the subjects of legal responsibility in the event of - violation of the legislation on honor and dignity, legislation on advertising, namely establish in the legislation the liability of the media, rather than its founders. According to Yu. Legeza, this provision is due to the fact that is the media editors that is its

operational management body and is directly involved in preparing the information content or issue of the newspaper, or television and radio program, or other result of intellectual property. For convenience of the mass media regulation it is appropriate, like in most European countries, to adopt the Law "On Mass Media", which will be the basis for further development and adoption of the Information Code, particularly in the part that regulates the scope of the mass information [6, 234- 235].

It should be noted that the current legislative mechanism to ensure the legitimacy of the election process is indirectly focused on control in case of relevant applications. Thus one of the pressing is the need for more clearly defined forms of control over the media coverage of pre-election campaign material. Forms of media control can be divided into at least two parts: 1) control by the experienced professionals in legal, sociological, economic issues from the public and private agencies at their own initiative, that is actual monitoring of the media in the election process; 2) control of election commissions, law enforcement and judicial authorities in the event of violations and availability of complaints, appeals etc. We believe that in Ukraine, first of all, the first form should be developed.

In this context, it should be noted that the CEC's fruitful cooperation with the National Council of Ukraine on Television and Radio Broadcasting in the early parliamentary elections in Ukraine in 2007 was related to the activities of the Independent Expert Council, whose members were approved by the National Council of Ukraine on Television and Radio Broadcasting of June 17, 2007 № 881 [7, 249]. The main area of the expert council' activities was to provide expert opinions, estimates and recommendations on the media during the pre-election campaign. The need for such an independent commission on the media was repeatedly emphasized by the OSCE/ODIHR and the Venice Commission [8, 91].

As a side note, the current practice of such special independent bodies involved in monitoring of the violations of law that occur during elections, including - during campaigning, exists in many countries, particularly, in the USA, the election commissions do not consider violations during elections. For this purpose, there is a special department at the United States Department of Justice, and in every state - a special service at the General State Bar.

Analyzing the regulation of legal responsibility for violation of pre-election campaigning, we shall note that the electoral law establishes such liability entities as political parties or individual candidates for elective office. In particular, domestic

election laws contain a list of grounds for warning the party or individual candidate that is published in the national media. The grounds for the warning may be the violation of the electoral legislation that does not entail the use of other type of penalties.

As already mentioned, the electoral laws do not include any preliminary requirements for the candidate to resign from the government bodies for the period of his/her campaign with, requirements of the incompatibility of some offices with the status of the candidate, and sanctions for violation of the prohibition of participation of the state and local government officials in campaigning. To combat the use by the candidate of his/her post during the campaign, in our opinion, it is necessary to establish more clearly in the election legislation the list of such violations, sanctions for violations, effective scheme of penalties and the need for a decision by an independent body. It is possible to use the experience of countries such as Poland, Romania, Macedonia, etc., where the election laws expressly prescribe the sanctions for their violation.

In our view, there is an urgent problem on the need to improve the pre-election campaign forms and methods. In particular, in our opinion, it is necessary to develop such promising form of campaigning as TV debates. This form of pre-election campaign was introduced in the legal practice by the Law of Ukraine "On Election of the President of Ukraine" in 2004, but its application procedure was not clearly fixed. In this regard, legislative provisions on TV debates of the candidates for President of Ukraine were detailed by a number of the CEC resolutions [9, 10, 11, 12].

At the same time, Ukraine has not regulated the form of the use in the pre-election campaign of modern information technology (especially the Internet), providing instant access to previously published news, interviews and other political advertising, even during the "campaign silence". The regulation of relations with the use of the Internet should be based on the following principles: a) human and citizen rights and freedoms established by the Constitution and international regulations; b) use of the rules and practices that have developed in communities of the Internet operators and users if they do not contradict the legislation [13, 10].

At this stage, the campaign on the Internet is still in its infancy, as the audience of Internet users is, growing, new technical devices re applies, the role and place of various methods of Internet campaigning is changing, gradually, legislation governing relations in the network is changing as well. Currently, the election

legislation regulates only the use of printed and electronic (audiovisual) media during the pre-election campaign. It does not apply to the Internet, which according to the legislation of Ukraine does not belong to the mass media.

It should be noted that the path of complete legislative regulation of the Internet is futile, which, in turn, is recognized in many countries. The US Supreme Court in 1996 cancelled the law on Internet regulation on the grounds of First Amendment. In September 1998, France published the special report of the State Council on the legal issues associated with using the Internet. The overall conclusion of the report is: it is not necessary to create a special legal framework for the Internet. All matters are regulated by other laws. Instead, the report recommended to alleviate some provisions on the development of the Internet in France, in particular regarding registration of the websites [14, 26].

Meanwhile, some provisions of domestic election legislation set limits on the pre-election campaign concerning not only the media, but the Internet information system. This primarily applies to the provisions on the prohibition of dissemination of materials containing calls for the elimination of Ukraine's independence, deliberately inaccurate or slanderous information about a party (bloc) or the candidate etc. However, in practice, the Internet has become a very convenient information platform for "throwing" in the society the compromising information on one or another political force, since virtually there are no restrictions on the nature of the information posted on the Internet. Only a few manage to win lawsuits about placing false information on the Internet [15, 64]. This is explained by the complexity of proving the involvement of specific individuals, organizations in the placement of campaign materials and possibility of hacker posting of campaign materials in the Internet.

In the literature, there are opinions that the campaign materials posted on the Internet can be attributed to the audiovisual campaign materials. It follows that such materials should not contain commercial advertising and cannot be produced without advance payment at the expense of the relevant election fund. But not all provisions on the audiovisual media can be used by analogy. For example, it is clear that campaign materials posted on the Internet cannot have copies and are not be submitted to the electoral commission prior to their distribution [16, 235].

To avoid manipulative influence on voters, to ensure the democratic development of the society, the free operation of a large number of sources of information and freedom of access to all interested citizens and public institutions

should be ensured, and the development of public control should be promoted [17, 138].

The negative trend of the election legislation is its frequent changes made by nearly every political party that comes to power to protect themselves using generally accepted democratic procedures. In other words, corporatism is an essential feature of the election legislation of Ukraine. But in developed democracies, the civil society and independent media monitoring prevent from the realization of the government's temptations to make the law more favourable to itself. Certainly, in any country, the current president, the ruling party has certain advantages during the elections. But limits on the use of such advantages in some countries are defined by the concepts of ethics. Elsewhere restrictions, if exist, lie in the plane of criminal law. Therefore, only with a change of legal awareness of citizens, their active actions towards combating unjustified changes to the law and violation of the election legislation, creation of independent, one may talk of the pre-election campaigning democracy.

Given the above and to improve the pre-election campaign legislation, we may conclude as follows: 1) in the current election legislation, the notion of pre-election campaign is determined imperfectly because it does not contain an exhaustive range of grounds on which one or other activity can be clearly attributed to pre-election campaign. Furthermore, it is impossible to define in practice a clear relationship between pre-election campaigning and political advertising. In the longer term, political advertising in the audiovisual mass media should be limited that would fully take into account the trends of the domestic laws in Europe; 2) provisions of the election legislation regarding the regulation of the print media also needs substantial improvement. The election legislation should be amended to provide for: *first*, abolition of quotas on advertising in printed media regardless of ownership (corresponding practice is not only unique in the democratic countries of Europe, but also complicates the implementation of the principle of equal access for all election entities to the media); *second*, cancelation of the prohibition on political advertising in the media only subject to advance payment for it by election funds; *thirdly*, extension of rules obliging print media to provide print space for pre-election campaigning on equal terms to all electoral process entities, to the print media controlled by the public authorities (respectively, the commercial media shall be released from this obligation); 3) improvement of legal regulation of opinion polls during the preparation of the elections should be carried out in three main areas: a) the media should be

obliged to disclose the information on the poll customers and entities that fund them; b) deadlines for disclosure of the poll results should be reduced from 15 days before election day to 1 day before the election or to election day, which will correspond to the world's practice; c) legislation should provide for sanctions for violation of election laws in the part of the public availability of the poll results, including liability of legal entities for relevant violations, adequate gravity of the violation.

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Larysa Udovyka,
*Zaporizhzhya National University,
Associate Professor, Doctor of Law,
Head of the Department of History
and Theory of State and Law, Faculty of Law*

Ukraine's legal system in the light of globalization transformations

Abstract: On the basis of the criterion of the legal system by globalization determines the type, condition and prospects of Ukraine's legal system. Substantiates that the legal system of Ukraine belongs to the transitional type of globalized fragmentary legal systems is under intoformatsion - term acquisition of new integrity, stability, taking into account the benefits of globalization and individual tries to resist the global challenges and threats.

Keywords: globalization, globalization transformationi, the national legal system, transformation.

Правова система України крізь призму глобалізаційних трансформацій

Лариса Удовика,
*Запорізький національний університет,
доцент, доктор юридичних наук, завідувач кафедри
історії і теорії держави та права, юридичний факультет*

Анотація: У статті на основі критерію глобалізованості правової системи автор визначає тип, стан і перспективи розвитку правової системи України. Обґрунтовується, що правова система України належить до перехідного фрагментарно глобалізованого типу правових систем, знаходиться на етапі інтоформації – періоді набуття нової цілісності, стійкості, враховує окремі

переваги глобалізації та намагається протистояти глобальним викликам і загрозам.

Ключові слова: глобалізація, глобалізаційні трансформації, національна правова система, трансформація.

Глобалізація як складний і суперечливий процес суспільного розвитку призводить до трансформації, а в ряді випадків руйнації національних економічних, правових, політичних, соціокультурних структур, пошуку та впровадження нових критеріїв і засобів стабілізації суспільного розвитку. Розвиток національних правових систем залежить від глобальних тенденцій правового розвитку і навпаки, глобальні тенденції правового розвитку істотно залежать від особливостей розвитку національних правових систем та їхнього співвідношення. Саме на рівні національних правових систем, враховуючи їхню специфіку, виявляються особливості дихотомії глобальності-локальності. Якщо міждержавні й міжнародні правові системи тяжіють до глобальності, то національна – до збереження самобутності, до поширення власних рис на інші правові системи країн. Відмінні риси у національних правових системах спричиняють їхнє розмаїття, призводять до того, що вони по-різному сприймають і відображають процеси глобалізації, глокалізації, локалізації.

Вчені, досліджуючи зміни, що відбуваються в сучасних правових системах (міжнародній, міждержавних, національних), зокрема зарубіжні, такі як: В. Бернхем, Ж.-Л. Бержель, Р. Давид, Р. Леже, В. Палмер, Х. Кох, У. Магнус, К. Жофре-Спінозі, К. Цвайгерт, Х. Кетц, К. Осакаве; українські - Х. Бехруз, Л. Луць, І. Лук'янов, І. Яковюк та ін., звертають увагу на суперечливий і багатоаспектний характер правового розвитку в умовах глобалізації та інтеграції, необхідність пошуку нових критеріїв типології правових систем.

Ураховуючи зазначене, поряд із різними типологізаціями правових систем, які викладені в науковій літературі, та враховуючи, що для сучасних правових систем притаманною є саме трансформація під впливом глобалізації – для визначення характеру й спрямованості трансформацій, які відбуваються у національних правових системах, спричинених глобалізацією, доцільним є використання комплексного критерію глобалізаційної трансформованості правової системи країни, який, поряд із правовою, включає економічну, політичну, соціальну глобалізацію. Ґрунтуючись на комплексному критерії глобалізованості

правової системи, сучасні правові системи можна розмежувати на глобалізовані, фрагментарно глобалізовані, глокалізовані та локалізовані правові системи. Пропонований критерій типології правових систем претендує на висвітленість і категоричність. У контексті зазначеного слушними є також міркування К. Осакаве, який зазначає: «при порівняльному вивченні правових систем компаративіст не має класифікувати їх, поділяючи на гарні й погані, так як всі вони, будучи відносно недосконалими, потребують вдосконалення» [1, 15].

Метою пропонованої статті є дослідження стану й перспектив розвитку правової системи України крізь призму глобалізаційних трансформацій.

До глобалізованого типу належать національні правові системи, які функціонують і розвиваються на основі домінування в національному праві міжнародно-правових норм. Фрагментарно глобалізованими правовими системами є національні правові системи, які перебувають в перехідному стані, оскільки, з одного боку, наявні значні показники (кількісні та якісні) процесу правової глобалізації, а з іншого, – простежується невизначеність чи суперечливість подальшого розвитку. До глокалізованих правових систем слід віднести національні правові системи, які функціонують і розвиваються на основі специфічного поєднання глобальних і локальних економічних, правових, політичних, культурних, моральних факторів. До локалізованих правових систем належать національні правові системи, які функціонують і розвиваються у протилежному глобалізації напрямі, зберігаючи традиційні елементи й зв'язки правової системи.

У найближчій перспективі глобалізація матиме більш складний і суперечливий вплив на правові системи різних типів і рівнів, викликатиме низку протиріч, спричинених відмінними правовими ідеологіями, демократичними й авторитарними традиціями, сакральними, релігійними, традиційними цінностями своєрідно відображеними в праві, відмінним баченням шляхів і засобів забезпечення подальшого правового розвитку, розв'язання глобальних проблем, усунення глобальних ризиків і загроз, мірою відкритості й прозорості правової політики, економічною, військовою, політичною могутністю держави.

В умовах глобалізації оптимальне поєднання міжнародного і національного права виступатиме найбільш дієвим засобом стабільного розвитку національної правової системи. Усунення негативних проявів глобалізації в міжкультурній, міжнаціональній і міждержавній взаємодії можливе тільки за

умови виваженого ставлення до правових стандартів, визнання існуючих правокультурних відмінностей. Позитивним наслідком взаємодії правових систем є утвердження й поширення таких політико-правових цінностей, як верховенство права, права людини, демократія, поділ влади, парламентаризм, політичний плюралізм, багатопартійність, публічність влади, її відповідальність за свої дії та некорумпованість, гармонізація у сфері цивільного, кримінального права, узгоджена політика у боротьбі з міжнародним тероризмом, торгівлею людьми, зброєю, наркотиками. Визнання і впровадження зазначених та інших цінностей, правових стандартів, процеси адаптації, імплементації, уніфікації сприяють правовій інтеграції та правовій глобалізації національної правової системи.

На основі використання комплексного критерію рівня глобалізаційної трансформованості, правову систему України слід віднести до фрагментарно глобалізованої, що підтверджується низкою показників. Україна долучилась до глобалізаційних процесів у правовій, економічній, соціальній, політичній, культурній сферах, здійснює певні кроки й докладає зусиль щодо інтеграції правової системи з правовою системою ЄС, активізує діяльність щодо членства держави у міжнародних організаціях, участі в міжнародних місіях, ратифікувала низку важливих міжнародних багатосторонніх договорів. Водночас, здійснювані заходи носять несистемний характер, відзначаються неузгодженістю, а обрані шляхи й засоби в багатьох випадках виявляються неефективними. Свідченням зазначеного слугують показники індексів за останні роки, зокрема таких як: Індексу глобалізації за версією KOF, за яким Україна посідає 47 місце серед 187 країн, згідно з Індексом глобальної конкурентоспроможності – 84 місце серед 148 країн; Індексом верховенства закону (2012, 2013, 2014 рр.) Україна має середній показник індексу 0,46 і рейтингове місце в діапазоні між 73 і 81 місцями (серед 97 країн); згідно з Індексом демократії Україна є частково вільною, має гібридний режим і посіла 80 місце. Згідно з доповіддю Міжнародної правозахисної організації Freedom House (2014 р.), Україна має статус частково вільної.

Грунтуючись на основних етапах трансформаційного циклу, а саме: 1) етапі безпосередньої трансформації; 2) етапі інтерформації; 3) етапі інтоформації; 4) етапі посттрансформаційного стану, встановлено, що сучасна правова система України перебуває на етапі інтоформації – періоді набуття

нової цілісності, стійкості, намагається враховувати окремі переваги глобалізації та протистояти глобальним викликам і загрозам [2,7]. На цьому етапі визначальними у правовій системі є не окремі елементи правової системи, структура, а глобалізаційні трансформації, зміни в самій правовій системі, у її внутрішніх (між підсистемами і елементами), та зовнішніх (з економічною, політичною системою та іншими правовими системами: національними, між-державними, міжнародною) зв'язках. Етап інтерформації трансформаційного циклу вітчизняної правової системи характеризується тим, що правова система маючи відкритий характер, відображає окремі прояви правової глобалізації та правової інтеграції у формі правової адаптації, гармонізації, уніфікації. Водночас, в своїй сукупності вони не забезпечують нової якості правовій системі, переходу на новий етап. Для національної правової системи, яка функціонує в умовах неврівноваженості, нелінійності і прискореної динамічності глобального правового розвитку, притаманні проблеми власне системного характеру, насамперед: дисфункційність, деінституціоналізація, розбалансованість.

Трансформації української правової системи як різновид соціальних трансформацій відображають перехідний етап у розвитку вітчизняної правової системи; це період становлення й утвердження нових правових принципів, норм і виникнення нових правових інститутів, відносин; це період перервності, відхилення, багатоваріантності, складнопрогнозованості, необхідності постійного вибору варіанта розвитку. Аналіз якісних змін вітчизняної правової системи та кількісних показників низки індексів і рейтингів свідчить, що правова система України належить до фрагментарно глобалізованого типу правових систем, функціонує і розвивається, враховуючи окремі складники правової глобалізації, а низка її елементів і підсистем залишається в незмінному вигляді, наслідком чого може стати перехід до іншої якості правової системи (як до глобалізованої, так і до глокалізованої чи локалізованої).

Засади оптимізації розвитку правової системи України в умовах глобалізації носять системний, комплексний характер і охоплюють всі підсистеми й елементи правової системи, а саме: в ідеологічній підсистемі – завершення процесу переходу до ліберально-правової ідеології як концептуальної основи правової політики, яка в змістовному та функціональному аспектах підпорядкована принципу верховенства права, гарантує і захищає права людини, забезпечує ефективність законодавства, сприяє формуванню цілісної націо-

нальної правової системи, досягненню структурно-функціональної єдності елементів, правовими засобами забезпечує модернізацію держави, захищає національні інтереси; у нормативній – комплексне обґрунтування й реалізація конституційної, адміністративної, судової реформи у напрямі децентралізації влади, реформування місцевого самоврядування, боротьба з корупцією; в інституційній – посилення взаємної відповідальності держави й особи, формування дієвих механізмів забезпечення й захисту прав людини, вагомого розширення прав колективних суб'єктів (насамперед, органів місцевого самоврядування); у функціональній – подальше впровадження світових і європейських правових стандартів, насамперед у правотворчу, правозастосовну, правоохоронну, правозахисну, судову діяльність; у комунікативній – оптимізація зв'язків правової системи з економічною, політичною, моральною системою українського суспільства шляхом розширення каналів комунікації, моніторингу зв'язків, своєчасного усунення дисбалансів і неузгодженостей; істотне оновлення взаємин з іншими національними, міждержавними і міжнародною правовими системами. У взаємоузгодженості та комплексності зазначені й інші засади, покликані забезпечити перехід правової системи на новий рівень функціонування й розвитку, від фрагментарно глобалізованої до глобалізованої правової системи, яка захищає національні інтереси, має потужний потенціал стійкості, дієвості, ефективності, здатна протистояти глобальним викликам і загрозам.

Запорукою оптимізації розвитку української правової системи в умовах глобалізації є обґрунтування й прийняття Концепції правової політики в умовах глобалізації, яка передбачає модернізацію правової системи України, істотне оновлення сутнісних, змістовних складників, інтегративно-комунікативних зв'язків, встановлення їхнього оптимального балансу й співвідношення, що уможливають перехід вітчизняної правової системи на новий рівень функціонування й розвитку, від фрагментарно глобалізованої до глобалізованої правової системи, яка гармонізує світові, європейські та національні правові принципи, норми, стандарти, переформатовує інтегративно-комунікативні зв'язки з міжнародною, регіональними (РЄ, ЄС) та національними правовими системами, захищає національні інтереси, володіє потужним потенціалом стійкості, дієвості, ефективності, протистоїть глобальним викликам і загрозам.

В умовах глобалізації вирішального значення набуває обґрунтування пріоритетів стратегії національної правової політики, правового прогнозування і

правового моделювання розвитку вітчизняної правової системи. Стратегія правового розвитку України, поряд з утвердженням і поширенням ліберальної правової ідеології, яка в змістовному та функціональному аспектах підпорядкована принципу верховенства права, визначається й здатністю формувати дієві правові механізми захисту національних інтересів в умовах геополітичної напруги та руйнації регіональної політичної, економічної, соціальної стабільності, широкомасштабних терактів, ескалації націоналізації економіки й ресурсів, насильницьких міждержавних конфліктів з регіональними та глобальними наслідками.

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Shulenkova Marina Alexandrovna,

Kama State Automechanical Technical School, Lecturer, Ph.D.

The patriotism of the elements of civil culture of the future specialist

Шуленкова Марина Александровна,

*Камский государственный автомеханический техникум,
преподаватель, кандидат педагогических наук*

Патриотизм в структуре гражданской культуры будущего специалиста

В условиях трансформации социально-экономических, политических, а также духовно-нравственных устоев жизнедеятельности социума особую значимость приобретает воспитание молодых граждан: реалии детерминируют происходящие изменения в системе взаимоотношений личности и общества, актуализируют проблему формирования гражданской культуры, воспитания патриотизма у подрастающего поколения [1, с. 34].

Профессиональная школа – важное звено в формировании личности молодого гражданина и патриота: профессиональные образовательные организации играют определяющую роль не только в формировании профессионально значимых качеств у студенческой молодёжи, но и, прежде всего, в воспитании гражданских ценностей российского социума [2].

Воспитательная работа среднего специального учебного заведения (общественно полезная, досуговая, самообразовательная деятельность обучаемого во внеурочное время) содействует формированию патриотизма – духовно-нравственной доминанты гражданской культуры студента. Патриотическое воспитание молодых граждан России (определяющее направление государственной политики) имеет системный характер: динамичное совершенствование целостности и взаимосвязи её составляющих проявляется в

росте уровня патриотического сознания и активной гражданской стратегии студентов [3, с. 14].

С нашей точки зрения, гражданская культура будущего специалиста (сущностная характеристика молодого гражданина, его деятельности) подразумевает гражданское мышление, активную гражданскую стратегию, опыт общественно полезной работы, патриотизм [2, с. 543].

Патриотизм и гражданская культура – взаимосвязанные концепты, характеризующие интегративное свойство личности и общества, определяющие качество их социального развития и отражающие связь личности гражданина и общества со средой существования. Объективная оценка исследуемых явлений и категорий возможна при условии анализа исследуемых феноменов в движении, развитии, взаимодействии – в системе.

Логика рассуждения нацеливает нас на целесообразность рассмотрения патриотизма (системообразующего элемента гражданской культуры) в структуре целого: как гражданская культура будущего специалиста представляет целостную и динамичную часть общей культуры молодого гражданина, так и патриотизм студента обозначен в ракурсе гражданской культуры (в призме приобщения обучаемого к системе гражданских качеств, идеалов, духовно-нравственных чувств и морально-правовых норм поведения в социуме).

Критерием гражданской культуры выступает уровень знаний и степень их реализации в соблюдении прав и обязанностей гражданина. Формирование гражданской культуры будущего специалиста в профессиональной образовательной организации базируется на процессе освоения и присвоении обучаемыми духовно-нравственных ценностей и норм поведения в социуме.

В нашем исследовании [4] структурный аналитический аспект гражданской культуры будущего специалиста подразумевает взаимосвязь компонентов исследуемого феномена в призме гражданско-патриотического воспитания: 1) знаниевый (когнитивный) компонент (ценностное содержание: развитое правосознание, историко-культурные общенациональные ценности и традиции); 2) эмоционально-ценностный компонент (нравственные ценности и культурные достижения в условиях межнационального и межконфессионального взаимодействия); 3) поведенческий (конативный) компонент (активная

гражданская стратегия: гражданская ответственность, толерантность, нетерпимость к насилию).

Патриотизм основывается на трансформации новых гражданских знаний мыслительного содержания в устойчивые ориентации молодых граждан-патриотов: сформированное патриотическое сознание, чувство приверженности своему Отечеству перерастает в готовность к выполнению гражданского долга и конституционных обязанностей по защите интересов своего государства. Понятие «патриотизм» соизмеримо с концептом «национальное достоинство» [5].

Модель формирования гражданской культуры российского студента обусловлена следующими особенностями: 1) гражданская культура, синтезируя ценностно-смысловые и культурные ориентиры российского социума, содействует консолидации студенческой молодёжи; 2) гражданская культура в условиях российских реалий подразумевает взаимоотношения субъектов в призме духовно-нравственных ценностей, этико-правовых норм гражданского общества, приверженности Отечеству; 3) гражданская культура, регулируя жизненную стратегию будущих специалистов, способствует сплочению студенческой молодёжи посредством патриотических ценностей и традиций российского народа.

В содержательном аспекте гражданской культуры студента патриотизм – основополагающий элемент ценностно-нравственного воспитания подрастающего поколения: российский патриотизм сводится к духовной взаимосвязи поколений на основе героических подвигов и исторических достижений единого народа. Недопустимо критичное восприятие идеологии предшествующего исторического периода вне призмы объективного содержания патриотизма граждан России: беспримерный подвиг советского народа в Великой Отечественной войне, послевоенная героика, покорение космоса, политика мира в условиях многополярного взаимодействия – составляющие патриотических взглядов, чувств, убеждений, приверженности молодых граждан Отечеству дедов и прадедов.

В полифункциональной среде российского многонационального народа патриотизм неотделим от трансляции ответственности за судьбу Родины: территориальная целостность, социально-политическая стабильность, межэтническое согласие, межконфессиональное взаимопонимание – определяющие факторы патриотизма. Воспитание в поликультурном пространстве отече-

ственной профессиональной школы ориентировано на предупреждение межэтнических столкновений, утверждение гражданского согласия и толерантности как опосредованной формы взаимосвязи патриотизма и гражданской культуры.

Безусловно, эффективность воспитания патриотизма в структуре гражданской культуры будущего специалиста предусматривает разумное сочетание как традиционных, так и инновационных технологий вариативной направленности (информационные технологии, технология формирования гражданской культуры, технология саморазвития личности патриота и т.д.) [6, 7]. Однако формальный подход к выбору психолого-педагогических механизмов формирования исследуемого концепта, например, введение в учебный процесс профессиональной школы специального предмета, не является решением проблемы [8, с. 68].

Побуждение студенческой молодёжи как в урочное, так и внеурочное время к деятельностному проявлению патриотического сознания посредством социально полезной работы – действенный инструмент в формировании гражданской культуры молодых граждан и специалистов, носителей культурных традиций и ценностей российского социума.

Рассмотрев патриотизм (духовно-нравственную доминанту) в структуре гражданской культуры студента среднего специального учебного заведения Российской Федерации, определим суммарное изложение исследования:

- воспитание патриотизма в структуре гражданской культуры будущего специалиста подразумевает формирование общественно значимых ценностей и ориентиров, социально полезную деятельность молодого гражданина, соизмеримость общественно-государственных интересов и личных, гражданскую ответственность за поступки, толерантное отношение к гражданам других национальностей;

- организацию патриотического воспитания в структуре гражданской культуры будущего специалиста-патриота следует проектировать с учётом возрастных особенностей студентов и специфики профессиональной образовательной организации;

- специфика модели формирования гражданской культуры российского студента обусловлена реалиями гражданского общества и демократического правового государства Российской Федерации, их взаимоотношениями, основу

которых составляют патриотические ценности и нормы гражданского социума, приверженность Отечеству;

- учёт сложных условий российской многонациональной среды воспитания патриотизма подразумевает ориентацию на общечеловеческие ценности: воспитание в подобной среде отражает надэтническую гражданскую идентичность по отношению к индивидуальным субъектам;

- формирование патриотизма в структуре гражданской культуры будущего специалиста на основе уважения этнокультурного многообразия предполагает развитие у студенческой молодёжи понимания и уважения субкультурных различий в нравственных ценностях – залога преодоления межкультурных конфликтов и столкновений в призме единства и многообразия культур, трансляции общегражданских ценностей.

Итак, гражданская культура и патриотизм – факторы развития и укрепления социума в Российской Федерации: благодаря данным категориям создаются общегражданские ценности, позволяющие в условиях многонациональной общности находить единое при разумном сохранении каждым народом своей уникальности. Система гражданско-патриотического воспитания отечественной профессиональной школы среднего звена ориентирована на формирование активной гражданской позиции студенческой молодёжи, воспитание эмоционально-ценностного отношения к действительности, развитие нравственно-регулируемых норм поведения у будущих специалистов в условиях многополярного мира.

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Shulenkova Marina Aleksandrovna,

Teacher, Candidate of Pedagogical Sciences,

Zalakayev Farit Nurgaliyevich,

Associate Professor, Candidate of Pedagogical Sciences, Director,

Kamsky State Automotive Technical School

Potential of educational process in formation of civil culture of future expert

Abstract: The author considers a phenomenon «civil culture» in a concept of the organization of educational process at vocational school of an average link, opens the potential of educational process in formation of civil culture of future experts. The presented educational system of one of ssuz supplements and concretizes practical aspect of formation of civil culture of student's youth in SPO.

Keywords: education process, educational system, young citizens; formations of civil culture of student's youth.

Шуленкова Марина Александровна,

преподаватель, кандидат педагогических наук,

Залакаев Фарит Нургалиевич,

доцент, кандидат педагогических наук, директор,

Камский государственный автомеханический техникум

Потенциал воспитательного процесса в формировании гражданской культуры будущего специалиста

Аннотация: Автор рассматривает феномен «гражданская культура» в концепте организации воспитательного процесса в профессиональной школе среднего звена, раскрывает потенциал воспитательного процесса в формировании гражданской культуры будущих специалистов. Представленная воспитательная система одного из ссузов дополняет и конкретизирует прак-

тический аспект формирования гражданской культуры студенческой молодёжи в СПО.

Ключевые слова: процесс воспитания, воспитательная система, молодые граждане.

В условиях развития инновационной экономики, изменения требований рынка труда, совершенствования антикризисной политики, трансформации духовно-нравственных ценностей и ориентиров социума возрастает роль профессиональной школы в подготовке молодого гражданина и специалиста, носителя гражданских качеств и ценностей российского общества [1, с. 542].

Профессиональные образовательные учреждения среднего звена призваны сыграть определяющую роль в формировании высококвалифицированных специалистов и граждан – достойного кадрового резерва, влияющего на подъём отечественной промышленности, развития социальной сферы страны.

Формирование гражданской культуры подрастающего поколения – важное звено в подготовке будущего специалиста: исследуемый феномен определяет уровень сформированности общества, умение молодого гражданина продуктивно решать проблемы, сопряжённые с удовлетворением личностных потребностей, гражданских прав и обязанностей, выработкой алгоритма совместной деятельности [2, с. 546].

Логика рассуждения в призме рассматриваемого феномена ориентирует нас на актуализацию проблемы определения потенциала воспитательной деятельности профессионального образовательного учреждения в формировании гражданской культуры студента.

В нашем исследовании под потенциалом воспитательного процесса среднего специального учебного заведения в формировании гражданской культуры будущего специалиста следует понимать совокупность ресурсов профессионального образовательного учреждения, содействующих воспитанию молодого гражданина [3, с. 251 – 261].

В современной теории воспитания молодых граждан выделяются взаимосвязанные аспекты в изучении ценностно-целевых ориентиров подготовки будущих специалистов: 1) знаниевый (когнитивный) компонент, 2) эмоционально-ценностный компонент, 3) поведенческий (конативный) компонент.

Реализацию потенциала воспитательной системы ссуза в формировании гражданской культуры студента, заданную логикой и структурой профессионального воспитания молодого гражданина и будущего специалиста среднего звена, составляют:

1) знаниевый (когнитивный) компонент (ориентация будущих специалистов на гражданские и духовно-нравственные ценности, традиции общечеловеческой и национальной культуры, формирование у студенческой молодёжи гражданской и профессиональной стратегии, социальных и профессиональных установок, мотивов социальной и профессиональной деятельности гражданской направленности);

2) эмоционально-ценностный компонент (развитие эмоционально-ценностного отношения к действительности, к Родине, государству, обществу, соотечественникам, историческому прошлому отечества);

3) поведенческий (конативный) компонент (включение студентов в социально полезную деятельность, актуализация клубных и творческих объединений в жизни будущего специалиста, осознанное исполнение молодыми гражданами морально-нравственных норм и гражданского долга, гражданской ответственности за свои действия и поступки).

Компоненты гражданской культуры будущего специалиста и содержание деятельности воспитательной системы ссуза взаимообусловлены, находятся в диалектической взаимосвязи.

Воспитательная система профессионального образовательного учреждения – целостное и динамическое единство взаимосвязанных составляющих элементов: цели и задачи воспитания, механизмы деятельности по их реализации, субъектов деятельности, их взаимоотношение, интеграция объектов в определённой общности, среды системы, управления, объединяющего компоненты в систему и содействующего развитию системы.

В условиях реалий в педагогической теории сущность феномена «воспитательной системы» рассматривается с различных точек зрения. Воспитательная система ссуза (структурный элемент гражданской жизни социума) относится к социальному типу систем и состоит из ряда компонентов:

1) концептуальный (теоретико-методологические основы формирования гражданской культуры будущего специалиста);

2) организационно-структурный (сообщество преподавателей и студентов, взаимодействующих в воспитательной системе ссуза);

3) проблемно-содержательный (совокупность целей и задач гражданского воспитания студентов, перспективы и принципы алгоритма воспитательной системы ссуза);

4) функционально-деятельностный (эмоционально-психологическая, духовно-нравственная и предметно-материальная среда воспитания; взаимодействие сообщества ссуза с социокультурными, педагогическими и производственными сообществами);

5) диагностико-аналитический (критерий эффективности воспитательной системы в формировании гражданской культуры, механизмы изучения её продуктивности, интерпретация результатов).

Безусловно, ссуз – локальная социально-психологическое сообщество: среднее специальное учебное заведение, объединённое организационно и территориально, имеет общие цели, содержание и формы деятельности. Кроме того, среду ссуза характеризует общность интересов обучаемых, их образа жизни, норм поведения и взаимоотношений, что отражается на способах организации их досуга. Подобная организационно и психологически-целостная среда ссуза при определённых условиях может стать эффективной воспитательной системой, содействующей формированию гражданской культуры будущих специалистов среднего звена [4, с. 51].

Формирование гражданской культуры студентов в рамках воспитательной системы ГАПОУ «Камский государственный автомеханический техникум» (КГАМТ) города Набережные Челны подразумевает целостную упорядоченную систему механизмов воздействия на молодых граждан с целью достижения ими определённого уровня гражданских качеств и ценностей.

Специфика воспитательной системы формирования гражданской культуры обучаемых в техническом ссузе связана с особенностями ценностно-целевых установок, содержания воспитательной деятельности коллектива студентов и преподавателей, с условиями её организации и влияния на становление гражданина и специалиста технической сферы деятельности. Ценностно-целевые установки такой системы подразумевают область профессиональной деятельности будущих специалистов-техников: у будущих специалистов данной сферы деятельности необходимо развивать систему

профессиональных ценностей и идеалов, расширять духовно-нравственные потребности и идеалы, социально-ценностные мотивы, обогащать их волевою сферу.

На наш взгляд, эффективность формирования гражданской культуры в концепте воспитательной системы техникума зависит, с одной стороны, от уровня исходных личностных качеств будущего специалиста, с другой, от уровня развития воспитательного коллектива, степени включённости будущего специалиста в его жизнедеятельность.

Модель формирования гражданской культуры будущего специалиста-техника в воспитательной системе КГАМТ подразумевает совокупность требований государства и социума к личностным и гражданским качествам специалистов технической сферы деятельности, цели, задачи, ориентиры воспитательной деятельности, механизмы взаимодействия педагогов и студентов (равноправных субъектов воспитания), особенности влияния микро- и макро-среды.

Диалектическая взаимосвязь составляющих гражданской культуры будущего специалиста-техника и содержание воспитательной системы ссуза в практическом аспекте представляют сбалансированные влияния всех субъектов системы, подразумевающие воспитывающие ситуации в специально созданных условиях. Система ключевых дел КГАМТ – традиционная форма воспитывающей деятельности в призме коллектива техникума, академических групп или творческих объединений студентов.

Знаниевый (когнитивный) компонент будущих специалистов-техников формируется и развивается посредством методик воспитания, в которых основным средством воздействия является слово. Слово – идейно-смысловой доминант в таких коллективно-творческих делах, как диспуты, экскурсии, интеллектуальные игры, занимательные викторины, пресс-конференции и т.д.

Формирование эмоционально-ценностного компонента гражданской культуры студента технического ссуза продуктивно реализуется посредством образного восприятия мира, обогащения эмоциональной сферы личности, развитие социально значимых эмоций у обучаемых: традиционные акции «Милосердие», встречи с деятелями культуры и искусства, тематические экскурсии, работа творческой студии-вокал, патриотического клуба «Мои Челны», волонтерских отрядов, благотворительная деятельность, внеау-

диторные занятия, тематические вечера и т.д. содействуют развитию морально-нравственной культуры будущего специалиста.

Поведенческий (конативный) компонент гражданской культуры специалиста-техника обозначен реальными действиями, поступками и поведением в социуме. Этому способствует сознательное и активное участие обучаемых в социально полезной деятельности: социальные проекты, участие в общественно-полезной деятельности, в трудовых делах техникума, реальная помощь ветеранам социальной значимости и т. д. Кроме того, клубы по интересам (современные молодёжные организации студентов-активистов учебного заведения различных специальностей) обеспечивают преемственность воспитательной системы «школа – ссуз».

Итак, компендиум исследования потенциала воспитательного процесса в формировании гражданской культуры будущего специалиста-техника составляют следующие положения:

1) в условиях реалий актуализирована проблема воспитания будущих специалистов: воспитательный процесс (неотъемлемая составляющая образовательного процесса профессионального учебного заведения) ориентирован не только на трансляцию профессиональных знаний и умений, но и, прежде всего, на формирование гражданской культуры будущего специалиста;

2) проблема совершенствования воспитания студенческой молодёжи в средних специальных учебных заведениях приобретает особую значимость: на современном мобильном рынке труда востребованы рабочие профессии;

3) становление будущего специалиста и молодого гражданина в рамках воспитательной системы ссуза протекает при условии включения студента в процессы целеполагания, в совместную коллективно-творческую деятельность, ориентированную на развитие межличностных и групповых отношений в коллективе.

Таким образом, формирование гражданской культуры студентов в условиях воспитательной системы средних специальных учебных заведений – сложный процесс, эффективность которого определяется согласованностью и запланированностью воспитательных действий педагогического коллектива.

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Perepelitsa Maria,
National Law University, Kharkiv,
Professor, Doctor of Law Sciences,
the Faculty of Law

Problem of legal regulation object of taxation

Перепелиця Марія,
Національний юридичний університет, Харків,
професор, доктор юридичних наук,
юридичний факультет

Проблема правового регулювання об'єкта оподаткування

Постановка наукової проблеми та її значення. Податки, в яких би формах вони не сплачувались, є необхідним та невід'ємним атрибутом держави. Як у минулому, так і у сучасному світі фінансова система відповідного суспільства включала в себе обов'язкові платежі, що сплачувалися на користь країни. Світова наука податкового права заощадила багатий матеріал щодо історії виникнення та існування податкових систем різних держав та донесла до нас факти стосовно видів, форм податків, особливостей їх сплати. Але давність історії сплати податків не вирішила ряд головних проблем, що існують у цій сфері і які дійшли і до нашого часу. На одній з таких проблем хотілося б коротко зупинитися у даній статті.

У сучасній Україні існує ряд проблем щодо правового регулювання податкової системи та її складових. Податковий тягар збільшується, законодавство ускладнюється (замість того, щоб спрощуватися), прогресують порушення податкового закону, а саме головне те, що сплата податків не виконує ті цілі та завдання, заради яких вони були встановлені та закріплені у вищих державних законах (Конституції). Адже якщо платник сплачує державі все більше і більше податків – за логікою, далі повинно наступати і об'легшення життя, тому що податки сплачуються на користь всього суспільства. Але цього

ефекту не настає, а навпаки, податки у багатьох країнах витрачаються не в інтересах суспільства, а з очевидною шкодою для нього. Звідси у якості висновку слідує наступне твердження - держава і досі не визначилася з головними підставами (правилами) оподаткування, не навчилася розрізняти, які з речей можуть бути об'єктами оподаткування, а які повинні бути недоторканими у будь-якому випадку, що саме повинно бути покладено в основу об'єкта оподаткування. Отже, одним з важливих питань у податковій сфері вважаємо питання щодо правового регулювання об'єктів оподаткування.

Вищезазначеній проблемі приділяли увагу наступні вчені: О. Х. Озеров, О. А. Ісаєв, М. І. Тургенєв, М. І. Янжол, Є. І. Трубецький; із сучасних вчених - О. О. Соколов, М. І. Хімічева, О. М. Бризгалін, О. Ю. Грачова, М. Ф. Івлієва, О. М. Горбунова, М. Б. Разгільдієва, В. І. Гурєєв, О. В. Чуркін, А. Т. Шаукенов, Р. О. Гаврилюк та інші.

Мета та завдання статті. У статті головним та кінцевим завданням є визначення правових підстав, які дозволять виокремити із кола безліч існуючих предметів та послуг матеріального та нематеріального світу, ті, при наявності яких відповідні предмети та послуги характеризуються як об'єкти оподаткування. Причому виокремлення таких підстав повинно бути закріплено на законодавчому рівні і виступати головними орієнтирами при встановленні нового або модернізації старого податку. Такий порядок оподаткування є більш прозорим та зрозумілим як для платників, так і для контролюючих органів, ніж те, що ми маємо у сучасній податковій українській системі.

Аналіз досліджень поставленої проблеми та виклад основного матеріалу. Для того, щоб виконати поставлене завдання, необхідно дослідити ряд наступних питань - як в науці податкового права та в законодавстві визначається поняття «об'єкт оподаткування» та які виокремлюються види об'єктів оподаткування.

І. Х. Озеров визначав об'єкт оподаткування як «факти або предмети, з огляду на наявність яких податок сплачується, наприклад – земля, промисел, особа». Під видами об'єктів оподаткування він розумів: 1) особу; 2) предмети споживання; 3) окремі джерела доходу; 4) загальний дохід; 5) майно платника; 6) моменти переходу майна [1]. Таке визначення об'єкта оподаткування та деяких його видів є вірним, але не дає відповідь на головне питання, чи всі факти та предмети повинні визнаватися об'єктом податку. Для прикладу можна

розглянути випадок, коли особа набуває у власність (спадщина) майно у вигляді маєтку, що розташований біля болота. Особа не бажає жити у такому маєтку, тому що болото своїми гнилісними випаровуваннями отрує повітря і шкодить здоров'ю, але закон все одно зобов'язує її сплачувати податок. Можна навести і більш сучасний приклад, коли особа має у власності земельну ділянку, але від її використання має більше видатків, ніж доходів. І знов-таки, така земельна ділянка визнається об'єктом оподаткування.

В. І. Гуреев писав, що той чи інший предмет має властивості об'єкта оподаткування лише у разі, якщо від їх застосування власник отримує дохід (прибуток). Вчений розподіляв об'єкти оподаткування як певні блага на матеріальні (земля та інше майно) і нематеріальні (авторські права та ін.) [2]. Цей вчений звертає увагу на досить важливу, як ми вважаємо, думку – від застосування таких предметів власник повинен отримувати дохід або прибуток. Це дійсно так, бо якщо у власника буде відсутній дохід – у нього буде відсутнє і джерело сплати податку. Але все ж таки і тут виникає питання. Справа в тому, що дохід особа може одержувати різний за розміром – такий, який їй ледве дозволяє задовольнити свої головні (природні) потреби, і такий, що дозволяє жити у розкоші та мати доступ до найбільшого кола суспільних благ. Отже, тут повинен мати місце диференційований підхід стосовно оподаткування, хоча сама ідея щодо отримання доходу від використання відповідного предмету виглядає вже більш розумною.

О. В. Чуркін, досліджуючи зміст об'єкту оподаткування, доходить висновку, що таким є обставина громадського або господарського життя, визначена в законодавстві про податки та збори, що обумовлює або передбачає появу в платника податків якогось економічного блага і виступає як юридична підстава виникнення у платника податків обов'язку зі сплати податку [3].

Ще раніше на зв'язок між об'єктом оподаткування та економічним фактором звертав увагу А. О. Ісаєв. Об'єкт оподаткування, писав вчений, це категорія, яка враховує економічний потенціал того чи іншого блага [4]. Це правильне зауваження. Виходячи з його короткого, але важливого змісту, стає зрозумілим, що об'єкт оподаткування – це не просто благо, а благо, яке містить у собі відповідний економічний потенціал, джерело, яке здатне генерувати матеріальні прибутки та доходи.

Схожу позицію займає і Д. В. Вінницький, виділяючи необхідною вимогою при встановленні податку економічну основу – «Законно встановленим можна вважати тільки такий податок, який має економічне підґрунтя» [5]. На жаль, вчений не конкретизує, що саме розуміється під економічним підґрунтям, і тому важко зрозуміти, яка частина економічного підґрунтя може трансформуватися у об'єкт оподаткування, а яка повинна бути недоторканою.

Отже, ряд вчених, що досліджували дану проблему, підкреслюють наявність «економічного блага», «економічної основи», «економічного характеру», «економічного потенціалу» при встановленні об'єкту оподаткування, тобто важливим виступає економічний фактор. Безумовно, вважаємо це правильним підходом, тому що таким чином зразу відсікаються з кола об'єктів оподаткування ті предмети та явища оточуючого світу, які не можуть характеризуватися як економічні взагалі. Так, А. О. Ісаєв у свій час слушно зазначав, що не можуть бути об'єктом оподаткування вільні негосподарські блага, (наприклад, повітря, сонячне світло тощо), оскільки ці блага не входять до складу господарського обігу оподаткування [4].

Аналіз податкового законодавства дозволяє дійти висновку, що, у ст. 22 Податкового кодексу України відсутнє визначення об'єкту оподаткування, а має місце лише перелік його видів. Об'єктом оподаткування можуть бути майно, товари, дохід (прибуток) або його частина, обороти з реалізації товарів (робіт, послуг), операції з постачання товарів (робіт, послуг) та інші об'єкти, визначені податковим законодавством, з наявністю яких податкове законодавство пов'язує виникнення у платника податкового обов'язку [6]. Таке законодавче визначення не дає відповіді на головне поставлене запитання, а тому буде правильним зупинитися на економічному факторі як на підґрунті визначення об'єкту будь-якого податку.

Поняття економічного фактору досить складне, але так чи інакше воно ототожнюється з багатством. У свою чергу і багатство представляє з себе складне явище. В. Ю. Катасонов всю різноманітність визначень багатства зводить до двох: 1) наявність у розпорядженні (володінні) людини такої кількості благ, які перевищують його природні потреби (багатство у вузькому сенсі); 2) наявність у розпорядженні (володінні) людини такої кількості благ, які перевищують кількість благ, що знаходяться у розпорядженні (володінні) інших людей (багатство у широкому сенсі) [7]. Цей же вчений звертає увагу на ще

одне поняття, що протиставляється багатству. Це поняття достатку. Достаток – це така кількість благ, якої достатньо для задоволення життєво необхідних потреб людини [7].

Все вищесказане у деякій мірі дозволяє нам зробити висновки стосовно тих критеріїв, що повинні визначати об'єкт відповідного податку. По-перше, в основі виокремлення об'єкту податку завжди повинен лежати економічний фактор. По-друге, економічний фактор включає в себе поняття доходу або прибутку, від розмірів яких можна робити висновок щодо отримання особою достатку або вже багатства. А тому, наприклад, при встановленні податку з доходу фізичної особи держава повинна розділяти рівень доходу або прибутку, який одержує особа. Якщо дохід фізичної особи дозволяє їй задовольнити тільки життєво необхідні потреби, а до таких ми відносимо, окрім біологічних, і плату за житло і пересування транспортом – тому що неможливість задовольнити перші може привести до втрати житла, а других – роботи – то такий дохід повністю повинен бути звільнений від оподаткування. В цій ситуації мова йде про поняття достатку людини. Якщо людина перевищує цей рівень, вона вважається вже багатю (незалежно від обсягів) і тому її дохід повинен оподатковуватися різними видами податків. Вважаємо це правильним ще і з іншої причини. Людина, яка має тільки достаток, користується значно меншими благами у своїй державі, ніж та, яка багата, та має, відповідно, більший доступ до різних видів товарів та послуг, що виробляються всім суспільством. Отже, друга найбільш гостро та цікаво відчуває життя у такій державі, ніж перша, а тому вона повинна і платити за це.

Кілька слів хотілося б зазначити і про непряме оподаткування. Адже проблема визначення об'єкту оподаткування досить гостро відчувається і при встановленні непрямих податків. З непрямим оподаткуванням особи стикаються кожен день. Мова йде про ціни на товари та послуги, якими користується людина. У ціну таких товарів та послуг закладено непрямі податки – податок на додану вартість та акцизний податок (так звані податки на споживання). Вважаємо, що в такому випадку необхідно звільнити від оподаткування товари та послуги першої необхідності. Так, мова може йти про товари сільсько-господарського значення, тому що цей сектор економіки перебуває у досить важкому стані у державі. Непряме оподаткування повинне мати місце у податковій системі будь-якої держави, але буде характеризуватися як нега-

тивне, якщо надходження від податків на споживання (непрямих) перевищують надходження від податків на виробництво (прямих). Якщо податки на необхідне споживання складають суттєву частину державних доходів, то справедливо говорити про тяжкий стан бідних верств населення [4]. В Україні ж тільки один податок на додану вартість більше, ніж усі інші податки, формує публічні фонди. Навряд чи держава зможе відмовитися від цього податку в умовах сучасного дефіциту бюджету, але було б правильним, якби товари першої необхідності було б звільнено від оподаткування цим платежем.

Висновки дослідження. З всього вищесказаного можна зазначити наступні положення. По-перше, для вирішення проблеми правового регулювання будь-якого об'єкту оподаткування необхідно законодавчо закріпити такий критерій, як наявність у платника економічного блага, яке він отримує від предмету або діяльності, що здійснює. По-друге, економічне благо повинно включати в себе поняття доходу або прибутку, від розмірів одержання яких можна робити висновок щодо встановлення у такому випадку об'єкту оподаткування.

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Savchyn Myroslav,

Drogobych Pedagogical University,

Professor, Doctor of Psychology Sciences

Theoretical resourcefulness of spiritual paradigm of psychology

Савчин Мирослав,

Дрогобицький педагогічний університет,

професор, доктор психологічних наук

Теоретична ресурсність духовної парадигми психології

Завдання даної статті полягає у розгляді перспектив розвитку психологічної науки в контексті запропонованої духовної парадигми психології [1]. Пізнавальна функція запропонованої парадигми полягає у забезпеченні ґрунтовного розуміння та автентичного пояснення особистісних, психічних та психологічних процесів, станів і властивостей, в цілісному аналізуванні буття людини, враховуючи конструктивні і деструктивні тенденції розвитку людини, груп, суспільства та цивілізації загалом. Нами обґрунтовується ідея про двоскладовість внутрішнього світу, в якому представлене духовне начало, яке має трансцендентне походження та іманентне існування, та психіка як прижиттєво набута складова. Перед психологією ставиться завдання пізнання онтології та феноменології взаємодії психіки (душі) і духовності (духу). Констатується, що на цьому шляху дослідникам слід подолати панпсихологізм (психологічне трактування духовності), зосередити увагу на духовності трансцендентної природи, чітко диференціювати останню від духовності світської природи, уникаючи неавтентичного трактування духовності.

Духовність пов'язується із творенням інтимного життя людини за законами віри, любові, свободи, істини, краси і добра. Одночасно, науково довізначені поняття духовності, душевності й тілесності в їхньому взаємозв'язку не

дають цілісного уявлення про внутрішній світ людини. Автори навіть прагнуть зняти з понять душі і духу містичний ореол і ввести їх в лоно науки [2].

Інтенція духовної парадигми – осягнення справжньої суті та буття особистості з опорою на її глибинні утворення (Я-духовне, трансцендентні цінності та переживання). Пропонована парадигма орієнтує дослідників у розв'язанні проблеми взаємодії людини зі світом та осягнення нею вічності. Відтак, зрозуміти психологію сучасної людини можна лише за умови спеціального вивчення не тільки особливостей її взаємодії з оточенням, коли постійно розширюються соціальні межі, а також її глибинних духовних пошуків.

У персонології особистість має розглядатися невіддільно від її духовного начала, так само, як вона трактується невіддільно від соціальної та детермінанти власної соматки [3]. В особистості духовне начало зумовлює наявну та можливу (не наявну) єдність внутрішнього світу. Звичайно це може проявитися лише миттєво, завдяки власному трансцендентуючому зусиллю, коли вона - ставить саму себе на межу, за якою в її обличчя заглядає вічність. На цій межі людина здатна розлучитися сама з собою, розлучитися з несправжнім Я і зустрітися з автентичним Я. Відтак феноменологічний план дослідження особистості реальний, як і онтологічний, і має бути вибудованим як предмет наукового дослідження. Без цього неможливо зрозуміти фундаментальні джерела і рушійні сили саморозвитку людини, мотиви її поведінки та діяльності, роль у них несвідомого, свідомості та духовного. Саме латентна духовна інтенція індивіда приховує таємницю первинної «ідеальної форми особистості», що передує людському онтогенезу. Це означає, що в «онтологічному і феноменологічному планах сукупному Я передує вихідне потенціальне, апріорне, трансцендентальне Я, що має всі необхідні генетичні задатки проявитися і досягти свого вершинного ідеального лику в Над-Я [4; 5; 6]. «Усвідомлення себе і світу творцем посилює відчуття відповідальності людини за минулий і теперішній досвід, так само як і усвідомлення своєї здатності творити майбутній досвід» [7; 8].

Наявність духовного Я у структурі особистості уможливають явища рефлексії (рефлексивність) як фундаментальну здатність людини. Остання робить можливим «вихід особистості за межі» системи психічних та особистісних процесів, станів і властивостей, які стають доступними для суб'єктивної репрезентації та довільного керування. Інакше кажучи, у особистості закладена сила, що дозволяє долати власну обмеженість, постійно виходити за власні межі,

роблячи саму себе предметом свого функціонування. Результативним проявом цього засобу є уся феноменологія свідомості та самосвідомості особистості.

Особистість як стійка структура цілей, смислів, мотивів, одночасно постійно змінюється в системі різноманітних зв'язків і відносин. Відтак вона не зумовлена і не детермінована повністю обставинами, а самодетермінована – сама визначає чи піднятися їй над ними, чи підкоритися їм, а головна мета внутрішнього подвигу людини – набуття безпристрасності як «воскресіння душі раніше воскресіння тіла».

Особистість з духовним Я у змозі об'єктивувати себе для власної активності (регуляції та саморегуляції, організації, координації тощо). В результаті цього виникають відомі явища і процеси, як, наприклад, «духовний інтелект», «мислення про мислення» (метамислення), «пам'ять про пам'ять» (метапам'ять), «вторинна увага», «метакогнітивний моніторинг» [10; 11; 12; 13]. Це не просто метакогнітивні процеси, а процеси рефлексії та її феномени, суб'єктом яких є сама особистість.

Орієнтація персонології на духовну парадигму передбачає реалізацію справді цілісного підходу та розширення її предмета, зокрема, включення в нього вивчення одухотворених особистісних процесів, станів і властивостей, духовної екзистенції, врахування Я-духовного як центру свідомості та самосвідомості особистості. Якщо психоаналіз культивує принципи задоволення і раціональності, біхевіоризм – принцип адаптації, а гуманістична психологія – принцип гуманізації, повноцінного функціонування і розвитку особистості, то духовна парадигма орієнтує психологію на вивчення майбутнього (вічності) людини, з'ясування суті здорової онтології, повноцінної екзистенції, в якій сутнісно інтегровано індивідуально-специфічне, загальнолюдське та божественне. У предмет вивчення психології включається не тільки психічний, психологічний, соціальний і моральний, але й духовний розвиток, аналізується єдність людини та її буття, а також здатності, які забезпечують цю єдність, визначається зміст стратегічної активності людини – самовдосконалення в напрямі до духовного ідеалу і вдосконалення світу.

У контексті духовної парадигми постають нові проблеми у вивченні особистості: онтологізації її психологічної структури, проблеми самосвідомості (вичленовування Я-духовного) та спонукальної сфери (конструктивні тенденції та механізми її функціонування, становлення і розвитку), вивчення особистості

невіддільно від її буття, яке включає духовне. Зазначена парадигма передбачає нові підходи до розв'язання конкретних психологічних проблем, зокрема вимагає перегляду концепцій інтелекту, самосвідомості та емоційно-вольової сфер особистості. Чинник духовності розглядається, як визначальний в системі детермінації змісту, структур і розвитку життєдіяльності людини та функціонування її особистісних компетентностей.

Згідно з духовною парадигмою, особистість і психіку людини слід розглядати в контексті цілісної життєдіяльності, основним змістом якої є її (людини) самовдосконалення як образу Божого, спрямованого до подоби Божої, та вдосконалення світу (творення віри, любові, добра, свободи і відповідальності) як Царства Божого на землі. Пояснення феноменів здійснюється шляхом поєднання небесної (абсолютної, справді діалектичної, що ґрунтується на містичній настанові) та земної (каузальна, дедуктивна, діалектична і конвенційна) логік, подолання суб'єкт-об'єктної роз'єднаності у пізнавальному процесі. Констатується, що відомості про духовні феномени добуваються шляхом їх активної реалізації в бутті, самотрансцендентації, молитви, духовної рефлексії, творення любові, свободи, добра та відповідальності, самовдосконалення себе і світу.

У межах духовної парадигми емпірично встановлено, що під впливом духовного оптимальніше та ефективніше функціонує інтелект. Так, сприймання стає ціліснішим, усвідомленішим і об'єктивнішим, знижується рівень аперцепції, легко запам'ятовуються і відтворюється головне; своєчасно актуалізується досвід, легко схоплюється сутність розглядуваних проблем, долається егоцентрація мислення, закрита пізнавальна позиція, «мислення за бажанням»; уява не бере участь у виникненні гріховних помислів та пристрастей.

Реалізація духовної парадигми в дослідженні дозволить проаналізувати онтологію та феноменологію фундаментальних особистісних здатностей – вірити в себе, інших людей, у світ, в науку і трансцендентну духовність, любити, творити добро і боротися зі злом, творити свободу та відповідальність, самовизначатися та ін. В результаті психологія своїми засобами сприятиме зустрічі особистості з власною глибиною та вказуватиме шлях в серцевину її власного життя.

Встановлено, що у внутрішньому у світі людини духовна сила породжує синергетичні тенденції і одночасно блокує ентропійні, попереджує порушення

гармонії між психосоматичною, психічною, психологічною, соціальною, моральною і духовною автентичностями особистості. В точках біфуркації вона проявляється як своєрідний антрактор, який визначає напрям функціонування і розвитку особистості, сприяє розв'язанню її внутрішніх і зовнішніх суперечностей та детермінує адекватні вибори типів активності в різних сферах та рівнях життєдіяльності.

Вершинні функціональні структури психіки та особистості, які в сукупності утворюють сферу її духовності, є необхідною умовою і могутнім чинником психічного здоров'я, душевної гармонії, повноцінних соціальних зв'язків, самоактуалізації, високої радості буття особистості (А. Адлер, К.Г. Юнг, К. Хорні, Е. Еріксон, В. Франкл, А. Маслоу, Х. Кохут та ін.). Духовність як найвищий, вершинний рівень особистісного розвитку виражається в цінностях, які трансформуються в певні цілі, вона «супроводжує», опосередковує людський розвиток. Справжня духовність асоціюється з діяльним любовно-творчим ставленням людини до іншої людини, до світу і до самої себе, а її стрижневою функціональною структурою є моральність особистості.

Отже, реалізація духовної парадигми, розширює предмет вивчення психології, орієнтує її на з'ясування природи та суті найглибших феноменів внутрішнього світу особистості, когнітивних, мотиваційних та емоційних її проявів, обґрунтовує ідеал здорової особистості, вказує на шляхи вдосконалення її життєдіяльності.

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Zaigrayeva Nadezhda,

Irkutsk State University, Assistant Professor,

the Candidate of Psychological Sciences,

Department of Psychology

Gender socialization of children and teenagers in conditions of psychological dysontogenesis

Заиграева Надежда,

Иркутский государственный университет,

доцент, кандидат психологических наук,

факультет педагогики

Гендерная социализация детей и подростков в условиях психического дизонтогенеза

Процесс гендерной социализации современных детей и подростков, также как и их сверстников с интеллектуальной недостаточностью (задержка психического развития и умственная отсталость легкой степени (ЗПР и УО)) и в условиях депривации – один из самых сложных и противоречивых процессов в становлении личности ребенка, включающий в себя вопросы формирования психического пола, психических половых различий и полоролевой идентификации.

Актуальность и новизна материала статьи обусловлена прежде всего наблюдаемой в специальной психологии и коррекционной педагогике теоретической и практической неразработанностью проблемы гендерной социализации детей и подростков с интеллектуальным недоразвитием.

Гендерная социализация подразумевает процесс усвоения норм, правил поведения, установок в соответствии с культурными представлениями о роли, положении и предназначении мужчины и женщины в обществе (И.С. Клецина, 2009). Конструирование гендерных различий протекает через систему социа-

лизации, которая воспитывает разные формы поведения, навыки и психологические качества у мальчиков и девочек, начиная с раннего детства.

Проблему гендерного развития детей и подростков как основу семейной социализации можно рассматривать с позиций государства, семьи и детей. Государство озабочено снижением престижа семьи, низким уровнем рождаемости, нежеланием молодежи иметь и воспитывать детей, увеличением числа социальных сирот и одиноких людей, обесцениванием традиционного семейного образа жизни, навязчивой пропагандой альтернативных форм брачно-семейных отношений. Счастье в одиночку невозможно, ибо без семьи не может быть полноценной социализации. Семья прямо или косвенно отражает все изменения, происходящие в обществе, оказываясь на перекрестке его социальных и экономических проблем: наблюдается безответственное отношение к родительству многих матерей и отцов, насилие над детьми, распад семей. Многие существующие семьи трудно назвать благополучными и счастливыми. Эти проблемы отчасти связаны с полоролевой и гендерной социализацией человека, его репродуктивной, социальной, поведенческой функциями.

Социокультурные трансформации, происходящие в нашем обществе, привели к заметному искажению и даже разрушению традиционных моделей мужского и женского поведения. Сегодня педагоги, психологи, родители отмечают, что в последнее время наблюдается излишняя маскулинность у девочек, девушек и ярко выраженные феминные черты в поведении мальчиков, юношей, что создает трудности в самых разных сферах социальных отношений. Общеизвестно, что требования к мужчинам и женщинам в аспекте их социального поведения и коммуникации различаются. Следовательно, подрастающим мальчикам и девочкам необходимо знать о своем гендерном предназначении для психологического, социального, нравственного и душевного здоровья, а также для благополучия семьи и полоролевого баланса в обществе.

Обращение к теме гендерной социализации, на наш взгляд, актуально еще и потому, что, согласно Концепции долгосрочного социально-экономического развития РФ до 2020 года, приоритетными являются «укрепление института семьи, возрождение и сохранение духовно-нравственных традиций семейных отношений и семейного воспитания» [<http://www.ifap.-ru/ofdocs/rus/-rus006.pdf>].

Положения Л.С. Выготского о наличии общих закономерностей нормального и аномального развития и о качественном своеобразии развитии аномального ребенка позволили нам предположить, что гендерная социализация ребенка с интеллектуальной недостаточностью протекает по тем же законам, что и нормально развивающегося при наличии качественного своеобразия, преломляющегося через призму индивидуальных особенностей детей с нарушением интеллектуального развития.

Результаты собственных исследований показали, что при нормативном развитии у ребенка самостоятельно и спонтанно формируются полоролевые представления, однако дизонтогенез психики затрудняет этот процесс. Интеллектуальная недостаточность препятствует возможности самостоятельного приобретения полоролевых и гендерных представлений, поэтому у части детей и подростков они неполноценны, недифференцированы и/или искажены [2, 4].

Полученные данные по проблемам гендерного и социального формирования личности ребенка с дизонтогенезом психики способствовали расширению темы полоролевых представлений, составляющих основу гендерной социализации. Также изучались полоролевые предпосылки, установки, стереотипы, поведение и другие аспекты гендерной социализации как у детей и подростков с нарушенным, так и с нормативным развитием [3, 7, 9].

Результаты научно-теоретического и экспериментально-практического исследования по проблеме гендерной социализации детей и подростков при нарушениях в интеллектуальном развитии и в условиях депривации показали ее зависимость как от внешних (объективные трудности), так и внутренних (субъективные трудности) факторов.

Объективные трудности выражаются в социальных условиях окружения ребенка на ранних этапах его развития, т.к. важно, в какой социальной среде воспитывается ребенок – в семье или детском доме, в какой семье – эмоционально благополучной или неблагополучной.

В наших исследованиях было установлено, что в ситуации депривации и в неблагополучных семьях трудности в выделении полодифференцированных качеств имеют место как у детей, так и у их родителей (матерей). Атмосфера детского дома и неблагополучная семья далеко не всегда способны транслировать ребенку адекватные гендерные стереотипы, ребенок недостаточно

положительно воспринимает себя и не выделяет гендерные характеристики, что негативно сказывается на качестве его полоролевой социализации [4, 6, 7].

Субъективные трудности обусловлены характером и степенью выраженности имеющихся нарушений в интеллектуальном развитии у детей и подростков. Степень интеллектуального нарушения влияет на социальное восприятие, при котором дети затрудняются выделять гендерные характеристики, слабо дифференцируют гендерные роли. Нарушения их психосоциального развития, самосознания, а также часто неблагоприятные условия воспитания в семье (детском доме) не позволяют успешно формировать гендерные представления, полоролевую идентичность и соответствующее поведение, поэтому такие дети нуждаются в психолого-педагогическом сопровождении процесса гендерной социализации.

Условия депривации также сказываются на гендерной социализации детей и подростков, которые имеют идеализированные представления о семье, слабо выделяют полодифференцированные качества родителей и их функции [6].

У умственно отсталых девочек-подростков из детского дома выявлена слабая гендерная идентичность, которая проявляется в неудовлетворенности своим полом и женской ролью. Психическая и материнская депривации у девочек-подростков сужают диапазон эмоциональной отзывчивости и снижают выраженность эмпатии. Эмоциональная незрелость и когнитивное неблагополучие при задержанном психическом развитии создают дополнительные препятствия для развития эмпатических способностей будущих матерей и жен. Специфика обусловлена индивидуальным опытом общения в микросоциальном окружении [5, 8].

Анкетирование педагогов, работающих с детьми и подростками, показало, что большая часть педагогического состава не в полной мере осознает необходимость учета гендерной специфики в образовательном процессе [3].

Таким образом, говоря о детях и подростках с дизонтогенезом психики, можно утверждать, что нарушения их психосоциального развития, самосознания, а также часто неблагоприятные условия воспитания в семье, в детском доме не позволяют успешно формировать полоролевые представления, гендерную идентичность, эмпатические способности, столь необходимые для построения нормальных семейных отношений. Полученные резу-

льтаты содержат в себе показания для психолого-педагогической работы по сопровождению процесса гендерной социализации.

В контексте обозначенных нами проблем в Университете (г. Иркутск) проводятся исследовательские работы, включающие постановку психолого-педагогических формирующих экспериментов, направленных на усвоение полоролевых представлений, соответствующего полу поведения, развитие эмпатических способностей детьми и подростками с дизонтогенезом психики [1, 5, 8, 10]. Наличие определенных положительных результатов с еще большей остротой демонстрирует необходимость системной комплексной разработки психолого-педагогического сопровождения гендерной социализации детей и подростков с нарушениями развития, которая должна опираться на объединенные усилия родителей, воспитателей, учителей.

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Bakhmat Natalia,
Kamianets-Podilsky National
University named after Ivan Ohienko,
Associate Professor, Candidate of Pedagogics,
the Faculty of Pedagogic Science

***The system pedagogical training primary school teachers
under conditions of innovative educational environment***

Бахмат Наталія,
Каменец-Подольський національний
університет імені Івана Огієнко,
доцент, кандидат педагогічних наук,
педагогічний факультет

***Система педагогічної підготовки вчителя
початкової школи в умовах інноваційного
освітнього середовища***

В науковому середовищі та практичному просторі вищого педагогічного навчального закладу (ВПНЗ) увагу вчених привертають різні аспекти діяльності вчителя початкової школи, його підготовка до творчого виконання фахових функцій. Особливе значення має формування професійних компетентностей майбутніх вчителів, окресленню інноваційності навчання та впровадженню різноманітних технологій навчання з метою підвищення якості освіти. В цілому створюється концепція підготовки сучасного вчителя початкової школи, який вирізняється високим рівнем професіоналізму та професійної компетентності, здатного до творчої діяльності, підготовленого до ефективного використання досягнень науки та техніки у професійній діяльності та який, зокрема, характеризується наявністю дидактичних, предметних та суспільно-психологічних умінь і знань, спрямованих на стимулювання розвитку пізнавальних інтересів і духовних потреб, підвищення навчально-пізнавальної активності учнів.

Проте в останні роки до ВПНЗ формуються та висувуються вимоги підготовки майбутніх педагогів у галузі початкової освіти зі спрямуванням на розвиток дослідницьких і професійних компетентностей, креативних здібностей особистості на основі системного запровадження інформаційних технологій (ІТ). В свою чергу, введення ІТ у шкільну педагогіку має супроводжуватися адекватною педагогічною підготовкою вчителів в новому, сучасному ІТ-середовищі ВПНЗ.

У дослідженнях вітчизняних учених одним із розглядуваних аспектів важливе місце відводиться інформатизації педагогічної освіти (В. Биков, Р. Гуревич, М. Жалдак, Л. Карташова Н. В. Морзе, Л. Петухова, О. Співаковський та ін.). Впровадження та застосування ІТ у початковій ланці освіти досліджують О. Козленко, Є. Маркова, О. Шиман, О. Якушина та ін.

За результатами аналізу наукових праць з'ясовано, що інформатизація освіти потребує структурування компонент педагогічної підготовки майбутніх учителів початкової школи та вдосконалення традиційних форм та засобів навчання.

Тому метою статті є розкриття компонентів системи педагогічної підготовки вчителя початкової школи та виокремлення структури авторської методології пошуку концептуальних шляхів розв'язання проблеми формування теоретико-методичних засад проектування інноваційного освітнього середовища – хмарорієнтованого середовища педагогічної підготовки вчителя (ХОС ПП).

Врахування тенденційного впливу ІТ на педагогічну підготовку вчителя початкової школи, констатує утворення системної логічності, цілісності і змістової неперервності за мобільного групування компонент, які розкривають загальне, спеціальне, особистісне та дисциплінарне спрямування. Всі перераховані компоненти є окремими підсистемами, що утворюють відкриту інтегровану цілісну систему, функціонування якої спрямоване на якісну педагогічну підготовку конкурентоздатних педагогів початкової школи.

Субсистема загального спрямування є, власне, організаційним механізмом неперервної педагогічної освіти, який в останні роки зумовлюється інформатизацією суспільства, враховує сучасні тенденції, вітчизняний і зарубіжний досвід педагогічної підготовки майбутніх учителів початкової школи у ВПНЗ.

Субсистема, яка відображає спеціальну педагогічну підготовку, її специфіку у майбутньому, зумовлену розвитком та реформами освітньої галузі „початкова освіта”, напрямами підготовки майбутнього вчителя „педагогічна освіта”, освітньо-кваліфікаційним рівнем бакалавра.

Субсистема педагогічної підготовки, що спрямована на розвиток та врахування особистісних якостей, передбачає створення у ВПНЗ мотиваційних чинників професійного та особистісного розвитку майбутнього вчителя початкової школи шляхом запровадження сучасних педагогічних технологій (підходів, засобів, методів та форм навчання тощо), інформаційних технологій, а також неперервного моніторингу якості навчання на кожному етапі педагогічної підготовки.

Субсистема педагогічної підготовки на дисциплінарному рівні забезпечує врахування в їх змісті навчальних дисциплін, використовуваних формах, методах і педагогічних технологіях особливостей майбутньої діяльності вчителя початкової школи та можливого впливу означеного процесу інформатизації освіти.

Вчитель з високим рівнем сформованості якостей конкурентоздатного фахівця спроможний якісно організувати навчання учнів початкової школи, сформувані в них необхідні компетентності, які є необхідними для продовження навчання в основній школі та життєдіяльності в сучасному динамічному середовищі.

У цілому, система педагогічної підготовки майбутнього вчителя початкової школи в умовах інноваційного освітнього середовища має бути фахово спрямованою відкритою конструкцією, сутністю функціонування якої є формування його ціннісних освітніх орієнтирів з метою якісного виконання ним професійної діяльності.

Професійна педагогічна підготовка сучасного вчителя початкової школи зумовлюється характером виробничої діяльності, яка в останні роки виходить за класичні межі, поєднується із складниками його діяльності: навчальною, виховною, організаційною, інформаційною та дослідницькою; універсалізацією професійних функцій із метою їх професійної конкурентоздатності та інноваційно-зорієнтованої мобільності.

Основи зазначеного мають бути закладеними у процесі навчання педагогічних дисциплін у ВПНЗ, де майбутні вчителі початкової школи мають

отримати навички розвитку особистих ідей і розроблення навчальних проєктів, отримати якості сучасного, конкурентоздатного фахівця. Для цього потрібно адаптувати і застосовувати відповідну стратегію послідовних дій – методологію.

На підставі вивчення робіт, в яких розкрито поняття та особливості явища „методологія” [1; 2; 3; 4; 6] (*грец. μεθοδολογία* – вчення про способи та стратегії дослідження предмета) та „система принципів і способів організації і побудови теоретичної та практичної діяльності” [5] у власному дослідженні було прийнято рішення щодо виокремлення структури авторської методології пошуку концептуальних шляхів розв’язання проблеми формування теоретико-методичних засад проєктування інноваційного освітнього середовища – ХОС ПП як багатоаспектної відкритої динамічної системи:

- підстави методології: філософія, логіка, психологія, інформатика, системний аналіз;
- характеристики діяльності: особливості, принципи, умови діяльності;
- логічна структура діяльності: суб’єкт, об’єкт, предмет, форми, засоби, методи, результат діяльності, розв’язання задач;
- тимчасова структура діяльності: етапи;
- технологія розв’язання задач: засоби, методи, способи, прийоми.

Методологія, як обов’язкова компонента діяльності людини є, за твердженням Е. Юдіна, вченням про її структуру, логічну організацію, методи і засоби, які застосовують в її реалізації [6]. У процесі формування авторської методологічної моделі розв’язання наявних суперечностей та проблем опір чинився на те, що дослідники пропонують її розподіляти на складові:

- теоретичну – спрямовану на побудову моделі ідеального знання;
- практичну – орієнтовану на вирішення практичних задач розроблення алгоритму, способів, засобів і прийомів досягнення поставленої мети; його ефективність перевіряється пошуком шляхів досягнення мети та розв’язанням поставлених задач.

Теоретична складова методологічної моделі проєктування інноваційного освітнього середовища – хмароорієнтованого середовища педагогічної підготовки вчителів початкової школи має:

- враховувати специфіку його професійної педагогічної діяльності;

- відобразити загальні та спеціальні професійні педагогічні знання, вміння та навички та професійні наміри;
- особистісні якості, досвід соціальної і педагогічної практики та життєві спрямування.

Практична складова методологічної моделі проектування інноваційного освітнього середовища – хмароорієнтованого середовища педагогічної підготовки вчителів початкової школи повинна відобразити цілісний динамічний, інтегрований процес формування його професійних педагогічних компетентностей у площині предметного поля освітньо-кваліфікаційного рівня бакалавр.

Характерною особливістю зазначеної моделі є те, що вона:

- по-перше, має сформулювати прогностичне уявлення про узгодженість основних компонентів – системи – загального спрямування; спеціальної педагогічної підготовки; педагогічної підготовки, що спрямована на розвиток та врахування особистісних якостей; педагогічної підготовки на дисциплінарному рівні;

– по-друге, має сприяти відповідності процесу підготовки у ВПНЗ дидактичним принципам;

- по-третє, має відтворювати специфіку розвитку інформатизації освіти.

Отже, узагальнення викладеного вище дозволяє у подальшому виокремити основні концептуальні положення, на яких ґрунтується розроблення та впровадження ХОС ПП вчителів початкової школи у ВПНЗ.

Уведення єдиної інформаційно-технологічної педагогічної освітньої системи, на наш погляд, може стати перспективним інноваційним напрямом вирішення проблем, які виникають у педагогічній освіті, зокрема в останні роки, із навчально-методичним забезпеченням як учителів, так і учнів засобами навчання та викладання (електронними підручниками, посібниками, довідниками, словниками тощо).

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*Pylypenko Nataliia,
Municipal Establishment
Kharkiv Humanitarian-Pedagogical Academy
of Kharkiv Regional Council, Methodist*

International collaboration in Eurasia

*Пилипенко Наталія,
Комунальний заклад
«Харківська гуманітарно-педагогічна академія»
Харківської обласної ради, методист*

Міжнародне співробітництво в Євразії

Retrospect analysis of aesthetic culture

Ретроспективний аналіз поняття «естетична культура»

На сучасному етапі розвитку українського суспільства актуальності набуває проблема всебічного гармонійного розвитку людини. У її розв'язанні провідна роль належить факторам естетичного формування особистості. Саме тому основні завдання сучасної освітньої системи спрямовані на процес формування естетичної культури в майбутніх учителів, розвиток у них естетичних почуттів, емоцій, суджень, смаків, умінь, засвоєння ними системи знань, стимулювання творчої активності, розширення їх естетичного досвіду тощо. Тож у вищій школі спрямовуються зусилля на те, щоб якнайкраще забезпечити процес формування естетичної культури студентської молоді, створити педагогічні умови, які б сприяли підвищенню рівня їхньої естетичної вихованості. Вирішення цих завдань можливе за умов, у процесі яких відбувається емоційно-почуттєвий, культурно-творчий розвиток особистості.

Мета статті – проаналізувати на основі ретроспективних джерел сутність поняття «естетична культура».

Основні завдання:

- 1) проаналізувати сутність поняття «естетична культура»;
- 2) охарактеризувати основні підходи до визначення поняття «культура»;

3) розкрити сутність поглядів видатних педагогів на розуміння понять «естетика», «естетична культура» та «культура».

На підставі аналізу психолого-педагогічної, філософської, методичної літератури з'ясовано суть поняття «естетична культура». Визначено, що поняття «естетична культура», уведене в 20 столітті відомим німецьким ученим Е. Мейманом, ґрунтовно аналізується в сучасній літературі з філософії та естетики, особливо в останнє десятиліття, коли активно розробляються проблеми культури загалом та естетичної культури зокрема. У широкому сенсі естетика визначає «культуру естетичну» як спеціалізовану частину культури, якою характеризується стан суспільства з точки зору його спроможності забезпечувати розвиток мистецтва й естетичних відносин.

Поняттю «естетична культура» присвячені праці багатьох відомих дослідників, серед яких Ю. Боров, М. Каган, Н. Киященко, Л. Коган, А. Комарова, Н. Крилова, Г. Лабковська, Н. Лейзеров, У. Суна. Розкриваючи це поняття, М. Каган зазначав, що «естетична культура – не автономний розділ культури, а її загальний потенціал, її зовнішня і внутрішня форми».

У працях дослідників О. Апраксіної, Г. Бурова, Г. Ващенко, М. Верб, Т. Цвеліх, М. Нечепоренка, Г. Пономарьової, Т. Танько та інших висвітлено питання місця та значення естетичної культури в життєдіяльності учня, студента. Значним внеском у розвиток теорії та практики естетичного виховання особистості в Україні є праці В. Бутенко, Л. Коваль, Г. Шевченко та їхніх учнів і послідовників.

Із нашого погляду, естетичною культурою охоплюються способи організації й вираження моральної, релігійної, політичної культури, культури побуту, спілкування, мови, і, подібно культурі в цілому, вона різномасштабна за своїм вираженням: вона постає перед нами і як естетична культура суспільства, і як естетична культура кожної його частини, класу та професійної групи, вікової, освітньої, й відбивається як естетична культура особистості.

Згідно з сучасними уявленнями вчених, естетична культура – невід'ємна частина культури в цілому. Це не тільки сукупність засвоєних цінностей як результатів попередньої творчої діяльності, а й сам процес творення, засвоєння та споживання, поширення естетичних цінностей. Отже, особистість є об'єктом і суб'єктом культурної діяльності.

У дослідженнях, проведених Н. Дмитрієвою, Т. Костіною, К. Кулаєвим, доведено, що естетична культура має значний вплив на процес формування соціальної позиції, що заснована на гуманістичних цінностях, гармонізує емоційно-комунікативну сферу особистості, оптимізує її поведінку. Сформованість естетичної культури посилює особистісне ставлення до вибору професії, приводить у відповідність власні потреби суспільним ідеалам, уявленням про цінності, активізує внутрішні ресурси, забезпечуючи в такий спосіб самореалізацію особистості.

Очевидно, що вивчення процесу формування естетичної культури потребує чіткої уяви суті поняття «культура». Зазначене поняття є похідним латинського «cultura», що означає «виховання, освіта, розвиток, визнання» [1].

У філософії існують різні підходи до визначення поняття «культура». Емпіричний (описовий) підхід представляє культуру як суму, результат усієї діяльності людини, тобто сукупність нажитих нею предметів і цінностей. При оцінному (аксіологічному) підході виокремлюється спеціальна якість – «культурність», ступінь вираження якої визначається співвіднесенням оцінюваного з тим, що обрано за еталон.

За діяльнісного підходу культура розглядається як небіологічний, суто людський спосіб діяльності.

У сучасній культурології спостерігається трансформація змісту поняття «культура» від осмислення його як необхідної індивідові системи знань, умінь, способів діяльності – до акумулювання в межах цього феномена сутнісних сил, творчих потенцій індивіда в процесі діяльності.

У всьому різноманітті значень поняття «культура» містить уявлення про рівень досягнень, віднесених до людини, виражених у створюваних нею духовних і матеріальних цінностях. Виокремлюють дві сфери культури: матеріальну й духовну. У контексті нашого дослідження значний інтерес представляє другий різновид, яким характеризуються явища, «пов'язані з усвідомленням інтелектуальної та емоційно-психічної діяльності людини» [5, 130]. Естетична культура в зазначеному аспекті є своєрідною сполучною ланкою, що об'єднує комплекс елементів духовної культури суспільства, а отже, – ефективного інструменту реалізації всього творчого начала.

Поняття естетичної культури включає ознаку «естетичний». Ідеї естетичного зародилися в глибокій старовині й розвиваються, від Платона та

Арістотеля, донині. Ця еволюція обумовлена становленням естетики як науки, зокрема поглядів на її предмет. Термін «естетика» походить від грецького «aisteticos» – «сприйманий почуттям». Г. Гегель уперше в історії філософської думки сформулював проблему естетичної чуттєвості, охарактеризувавши її як виявлення особливого характеру функціонування цілісної людської чуттєвості в художньому процесі [2, 7].

Філософи-матеріалісти Д. Дідро, Н. Чернишевський уважали, що об'єктом естетики як науки є прекрасне. Саме ця категорія згодом була покладена в основу естетики, у цьому переконуємося, посилаючись на таке визначення: естетика – «філософська наука про прекрасне в дійсності й мистецтві, про особливості пізнання й перетворення світу «за законами краси» (К. Маркс), про загальні закономірності мистецтва, художньої творчості й естетичного виховання людини» [4, 5].

У східних культурах теж простежується тяжіння до ототожнення досконалого й естетичного. Арабський філософ середньовіччя Ал-Газалі, наприклад, стверджував: «...Краса предмета, його привабливість полягає в існуванні всього досконалого або того, що йому відповідає. Краса кожного предмета – у відповідності його виду досконалості».

Іммануїл Кант (1724–1804) переконаний, що тільки людина може бути ідеалом краси, тільки людство «може бути ідеалом досконалості». Отже, знову поняття «досконалість» трактується як важлива координата формування гармонії, ідеалу [3].

У процесі наукового пошуку виокремлено компоненти, якими характеризується естетична культура, у тому числі рівень її вираженості у свідомості й діяльності особистості.

Розгляд естетичної культури як універсальної наукової категорії став підставою для висновку, що остання є однією з головних умов усебічного розвитку особистості, охоплює найважливіші способи її життєдіяльності, тому на цей аспект слід звернути увагу вже на ранніх етапах виховання, зокрема, коли йдеться про дитину молодшого шкільного віку.

Посилаючись на положення про те, що суть загальної естетичної культури особистості можна розглядати як таку, що акумулює у собі елементи всіх складників розвитку людини й виражається як в інтелектуальній діяльності,

так і у фізичній досконалості, а також у моральному, трудовому, валеологічному процесі, об'єднуючи та гармонізуючи їх.

У процесі наукової діяльності обґрунтовано особливості підготовки майбутнього вчителя до формування естетичної культури дитини.

Із метою розв'язання зазначеної проблеми пріоритетними для сучасного педагога мають стати цінності самореалізації й саморозвитку особистості, ідея вільного вибору змісту та способів дидактичної діяльності, розвиток власних аналітико-рефлексивних і креативних здібностей.

Для здійснення вільної, варіативної, такої, що вповні вдовольняє соціальні потреби освіти, необхідний педагог, із сучасним педагогічним мисленням, потребою для здійснення повноцінної професійно-педагогічної діяльності, сформовані дидактичні ціннісні орієнтації, володіє технологіями навчання й формами взаємодії між учасниками педагогічного процесу, який прагне до особистісної та професійної самореалізації.

По-іншому, ідеться про виокремлення естетичної культури майбутнього фахівця як інтегрованої складової його професійної культури, що диктується певними обставинами.

Проаналізувавши процес підготовки конкурентоспроможного фахівця, зазначаємо, що педагогічній діяльності, як і будь-якій іншій, властива не тільки кількісна міра, а й якісні характеристики. Якщо ми, в процесі наукового пошуку розглядаємо естетичну культуру як якісну характеристику особистості, то рівень її сформованості можна правильно оцінити, із нашого погляду, лише визначивши рівень творчого ставлення педагога до своєї діяльності, що відображає рівень реалізації власних можливостей при досягненні поставлених цілей, тому творчий характер педагогічної діяльності тому є найважливішою її об'єктивною характеристикою. Вона обумовлена тим, що за різноманіття педагогічних ситуацій, їх неоднозначності, необхідні варіативні підходи до аналізу й рішення завдань, що впливають із них.

Отже, професійній діяльності майбутнього педагогічного фахівця властиві специфічні особливості, передбачаються особливі умови формування готовності до виконання функціональних обов'язків. Успіх й ефективність формування естетичної культури майбутніх учителів початкової школи залежить від сукупності адекватних принципів, функціональної спрямованості навчання,

методів і прийомів, засобів і педагогічних умов, за яких буде організовано навчання.

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Dzaraeva Natalia,

*Perm State Humanitarian Pedagogical University,
Associate Professor, Candidate of Pedagogical Sciences,
the Philology Faculty*

Conflict Competence as Integral Part of Personality

The present article deals with the problems of conflictology. These problems appear to be very urgent in modern society and relate to different spheres of our life.

Statistics shows that in the rapidly changing world of technology and business practice, in the situation of global crisis the incidence of conflicts is constantly increasing and has achieved its crucial level. It affects physical and psychological health of people, the quality of life and work.

It is necessary to emphasize the fact that the problem in question is not new and has been studied by researchers from all over the world. A lot of investigations and experiments are being undertaken to analyze the phenomenon of conflicts from theoretical and practical view points [1]. But the majority of these investigations approach conflicts as something negative and destructive thus focusing mostly on their types, phases of development and methods of prevention [2]. Moreover, most scientists consider conflict competence to be not the integral part of any personality but the province of a chosen few who have facility to avoid or to manage conflicts.

All above mentioned confirms that the phenomenon of conflict competence requires further investigation and new approaches for its understanding. The aim of the article is to prove the importance of conflict competence development. The tasks of this work are:

- to give a definition of "conflict competence";
- to find out the criteria for estimating the levels of conflict competence;
- to work out the levels of conflict competence;
- to design the model of conflict competence development;
- to analyze the conditions which contribute to effective functioning of the model;
- to carry out an experiment which confirms the efficiency of the designed model.

In the first stage of this investigation the analysis of philosophical, social and psycho-pedagogical literature was performed. The results showed that conflict competence was an integral personal quality which was the characteristic of absolutely all people without exception. Conflict competence is influenced by biological, psychological, psychosocial and social factors [3]. But in comparison with psychosocial and social factors which are rather dynamic and changeable, biological and psychological characteristics are relatively stable and, thus, make a major influence on the conflict competence of a person. On the ground of this analysis we made a conclusion that conflict competence was an integral personal characteristic which determined the behavior and the attitude to people in conflict situations [4]. The following levels of conflict competence were revealed: destructive, conformal and constructive. The criterion for figuring out these levels was a person's attitude which included three components: rational (the scope of theoretical knowledge concerning conflicts), emotional (emotional state of a person in conflict situations), behavioral (the system of effective practical skills to prevent and manage conflicts) [4].

The destructive level is characterized by insufficient knowledge concerning a conflict, its structure, dynamics, possible causes, prevention; lack of self-control and tolerance, tendency to express emotions regardless the feelings of others, depressions in case of prolonged conflicts; lack of practical skills to prevent and overcome conflicts, tendency to escalation in conflict situations, negative evaluation of opponents.

The conformal level is marked by the scope of knowledge which allows to determine a conflict, its structure, dynamics, causes. But this knowledge is not enough to predict the development of a conflict and its consequences. The facility to control an emotional state in conflicts is selective and is determined by the social environment. There is a tendency to passive behavior in conflicts, a person avoids rather than manages conflicts.

The constructive level is known for profound psycho-pedagogical knowledge of a conflict which allows to determine its beginning, to analyze causes, to prevent misunderstanding of a conflict situation. This knowledge provides the ability to predict the development and consequences of conflicts and to make rapid and correct decisions. A person obtains efficient skills of self-control, the ability to express emotions without insulting other people, tolerance to different viewpoints. There is

psychologically competent behavior in conflicts, focus on their effective overcoming, argumentation and civilized debate in disputes, the ability to control body and gestures.

In the second stage the model of the development of conflict competence was designed.

On the destructive level of conflict competence students should obtain basic knowledge of conflict competence. They are taught to follow the basic principles of etiquette, to plan their work, to take initiative, to support classmates, to cooperate effectively with each other, to keep their workplace in order and to be concerned with the well-being of others and with the university property. The main methods of education which are used on this level are example, persuasion, explanation, pedagogical suggestion, problem and research methods. The education process is arranged in the forms of lectures, seminars, practical classes, group or ethical discussions, community work.

The conformal level of conflict competence is marked by the insight into conflict competence and its criteria, understanding the moral aspects of the importance of prevention and overcoming conflicts. Students get the skills to be attentive, supportive, creative; to do homework regularly; to work independently; to work in a command; to respect others; to prevent and overcome conflicts. On this level the following methods are considered to be effective: example, exercises, instruction, pedagogical situation, “brainstorm”. The forms of the educational process which contribute to the providing of the above-mentioned methods are lectures, seminars, role-plays, business games, project work, workshops.

The constructive level of conflict competence is characterized by the understanding the importance of conflict competence and humanistic approach to people. The major impact is made on the obtaining such skills as working independently; working in a command; controlling emotions; abandoning self-interests in favour of others; predicting and preventing conflicts. The most suitable methods of education on this level are supposed to be modeling of conflict situations, exercises, introspection, self-control, autosuggestion, project work. The forms of education process on this stage can be conferences, debates, a problem-lecture, a lecture – consultation.

It is necessary to underline that this model is effective if the educational process is organized with regard to students' background, a friendly approach while

teaching and studying, if a teaching staff tries to impart the knowledge of conflicts and conflict competence to students and create a situation of success in classes.

In the third stage of our work this model was put into practice. 22 students of Perm State Medical Academy participated in the experiment. Initially with the help of special tests and diagnostic methods we determined the students' levels of conflict competence. 4 students (18%) had the destructive level of conflict competence; 14 students (63%) were at the conformal level and 4 (18 %) students revealed the constructive level of conflict competence. Taking into account these figures we optimized and modernized the educational process according to our model focusing on the developing of conflict competence in these students. The experiment lasted for 2 years and then the level of conflict competence was again measured. The final diagnostics showed that 12 (54 %) students showed the conformal level of conflict competence and 10 (45%) students had the constructive level of conflict competence. Nobody revealed the destructive level. The results of the experiment prove that in case of systematic work aimed at developing conflict competence a positive dynamics can be observed. The perspectives of further investigations can be connected with the influence of digital education on conflict competence.

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Eremina Natalya Aleksandrovna,

Nizhny Novgorod

State Engineering and Economic University,

Associate Professor, Member of the Union

of Designers of Russia,

the Faculty of Technology and Design,

Vilkova Marina Rudolfovna,

Nizhny Novgorod State Engineering and Economic University,

Associate Professor, Member of the Union of Designers of Russia,

the Faculty of Technology and Design

***Methods of increasing the level of project activity
in practical classes in the vocational
training designer clothes***

Еремина Наталья Александровна,

Нижегородский государственный инженерно-

экономический университет,

доцент, член Союза дизайнеров России,

факультет технологии и дизайна,

Вилкова Марина Рудольфовна,

Нижегородский государственный инженерно-

экономический университет,

старший преподаватель, член Союза дизайнеров России,

факультет технологии и дизайна

***Инновационные технологии организации
практических занятий как средство достижения
результатов в развитии профессиональных
компетенций дизайнера***

Современная социокультурная и экономическая среда предъявляют новые требования к модели специалиста. Сегодня недостаточно обладать ключевыми навыками, соответствующими определённому трудовому процессу. В арсенале профессионала должны наличествовать т.н. расширенные компетенции, позволяющие ориентироваться в инвариантных условиях проектного задания и мобильно переключаться на смежные виды деятельности. Свойства универсальности профессионального мировоззрения у будущих специалистов формируются последовательно и обеспечиваются компетентностной направленностью современного образования, которая предполагает развитие в человеке способности ориентироваться в разнообразии рабочих ситуаций, представлять результативность своей деятельности в общем процессе труда, понимать степень личной ответственности в обеспечении качества проектного продукта. Для достижения необходимого уровня в профессиональной подготовке выпускника образовательное учреждение должно активно внедрять инновационные методы обучения и ориентироваться на передовые педагогические технологии.

Современная дидактическая система профессионального образования выстраивается на синтезе образования и обучения, ориентируясь на принципы научности, связи с жизнью, сознательности и активности [1]. В дидактике профессионального образования развиваются и внедряются новые технологии, определяемые как инновационные методы обучения.

Инновационные методы основываются на мотивационно-целевой компоненте в содержании дидактических вопросов и задач, создании образовательной среды, коррелирующей с личностными качествами обучающегося, формировании условий для включения студентов в активную деятельность в режиме «здесь и сейчас» или иного фиксированного временного отрезка, методах самостоятельной работы в малых группах, умении действовать в команде, мотивируя коллективное решение. Современному образовательному процессу, ориентирующемуся на инновационные методы, необходимо применять гибкость, элективность, практику развития сотрудничества, контекстный подход к моделированию ценностных смыслов обучающих программ.

Инноватика в профессиональном образовании необходима для создания обучающей среды, которая направлена на взаимодействие с миром через имитационную практическую деятельности в максимальном приближении к

реальному производственно-проектному комплексу и позволяет не только осваивать подготовку к обобщённой практике в дизайне, но и закладывать умения специфического креативного освоения проблемы, а так же развивать навыки социализации и специальной коммуникации [2].

Имитационному процессу как инновационной структуре профессионального дизайн-образования уделено достаточно много внимания, что объективно, поскольку он позволяет смоделировать аналогичные производственным условия для закрепления и проверки сформированности той части профессиональных компетенций, которая является ключевой, и акцентировать существенные идентификационные признаки модели специалиста-дизайнера.

В технологиях имитационной деятельности формирование профессиональных навыков происходит через погружение в конкретную ситуацию, функционально-типичную для коммуникации в профессиональном сообществе дизайнеров одежды [3]. Производственное проектное задание для дизайнера всегда комплексное, предполагающее по ходу решения интеграцию с культурологической и инженерной средой. Значит, и учебное задание должно быть соответствующим. Преемственность формулировок проектного задания и воспроизведение условий реализации профессиональных задач, решаемых специалистом в ходе практической деятельности, является необходимым методическим приёмом в имитационном проекте.

Начинать имитационный проект необходимо с этапа обзора и анализа – предпроектного исследования. В отличие от профессиональной дизайн-практики, ограниченной фиксированными условиями технического задания, структура имитационного проектного цикла будет моделироваться на основе самостоятельно проведённого исследования. Предпроектное исследование обеспечивается решением задач аналитического характера, позволяющих формировать проектный образ будущего дизайн-продукта – костюма.

Постановка деятельностно-целевых задач и установок на предпроектное исследование для имитационного проекта, содержащая глаголы «выявите», «сопоставьте», «предложите», «внедрите», «опровергните», предполагает вариативность направлений поиска, возможность углубления в содержание вопросов и выявления смежной по смыслу специфической информации. Верность направлений исследования «запускает» закон парадоксальных интенций Франкла-Курина, согласно которому прочно усваивается не та

информация, на которой сосредоточены усилия, а та, что является побочной, возникает спонтанно, между делом. Та же информация, которая отвечает цели, на усвоение которой направлены действия, попадает лишь в кратковременную память и довольно быстро забывается [4]. Этот парадокс достаточно легко разрешается в культуре дизайн-мышления, ориентированного на поиск концепта через отвлечённые смыслы и установки. Вариативность не уводит от сути проблемы, но помогает обучающемуся точнее осмыслить, оценить и отобрать реально необходимый минимальный объём фактов и критериев, обуславливающих объективность проектного предложения. Вариативное веерное исследование в имитационном процессе подвигает обучающегося на включение в проектное поле, в том числе, креативных идей. Практика веерного поиска ответа на проблемный вопрос развивает навыки проектной культуры и дизайнерского мышления.

Рассмотрим пример освоения дизайн-проекта в направлении самостоятельного исследования в условиях инновационного имитационного задания. Заказчиком на проект выступила частная компания по организации свадебных церемоний. Проектное задание формулировалось в соответствии с требованиями заказчика: доработка готовых свадебных платьев линии «mass market» с помощью росписи «батик» для предложения к тематической свадебной церемонии под девизом «Тибет».

Выбор мотива для сюжета росписи осуществлялся в процессе поисковой деятельности в Интернет-ресурсах, в библиотечных фондах, среди образцов культурного наследия в Художественном музее г. Нижнего Новгорода. В результате были выбраны полотна художника Н.К. Рериха, изобразившего горы Тибета. Композиционная разбивка формы на полотнах Рериха согласуется с плоскостными композициями «батика», поэтому в стилизации приёмов росписи не было необходимости. После согласования выбранных сюжетов с заказчиком, обучающиеся приступили к работе.

Роспись готового изделия выполнялась в технике «Гутта», предполагающей контурирование рисунка мягким карандашом и далее последовательное прокладывание резервирующего состава и росписи внутри графических сегментов. Техника «Гутта» оптимальна для росписи готовых изделий, т. к. использование станка с натягиванием полотна в данном случае было бы не возможно.

В результате работы получилась коллекция «Тибет», состоящая из четырех платьев с сюжетным рисунком. Модели были представлены на нижегородском финале межрегионального конкурса портных-любителей и профессионалов «Серебряная нить», где получили высокую экспертную оценку.

Деятельностный характер профессионального образования ставит перед преподавателем задачу научить студентов самостоятельно использовать полученную информацию при создании нового знания и далее успешно применять её в самостоятельной профессиональной практике. Инновационные методы максимально нивелируют негативную сторону процесса обучения, когда превращения знания в понимание и практическое действие может не осуществиться. В инновационном имитационном проекте изменяется роль педагога: он становится тьютором, помогая студенту ориентироваться в базовых смыслах и отвечая на вызовы, мотивирующие к поиску новых знаний. Позиция тьютора основана не на трансляции фактических правил и законов, а на опыте самостоятельного нахождения ответов среди накопленных человечеством знаний или в результате личного творческого эксперимента. Задачи преподавателя-тьютора: помочь студенту получить максимальную отдачу от процесса обучения, следить за качественными приращениями компетенций и навыков обучающегося через систему обратной связи по выполненным заданиям, своевременно корректировать результат, поддерживать в студенте заинтересованность в обучении на протяжении всего цикла. У преподавателя-тьютора цели, стиль и повод для педагогического общения ориентированы на умение поделиться своим опытом и создать условия для возникновения такого опыта у других.

Технологии инновационного имитационного проекта способствуют проявлению эффекта синергии в профессиональной подготовке: у будущего специалиста развивается навык правильной профессиональной лексики и предметного диалога, самопрезентации, критического мышления, профессиональной лабильности, что в дальнейшем поможет ему качественно освоить любую профильную производственную ситуацию.

Инновационные технологии способствуют наилучшей реализации критериев сформированности профессиональных компетенций дизайнера одежды:

- разрабатывать и воспроизводить в формате общепризнанных представлений о прекрасном новый символ (объект), понятный и воспринимаемый многими;

- осуществлять корреляцию вариантов решений проектной задачи относительно условий организации производственного цикла;

- предлагать адекватные идеи, обладающие не только степенью соответствия, но и степенью практической применимости результата, а также степенью диссеминации (распространения), то есть социальной применимости варианта решения;

- ощущать, сохранять и продвигать традицию организации средового пространства, в котором осуществляется проектно-творческая деятельность.

Вовлечение имитационных ситуаций, адекватных проблемным и модельным методам обучения, в процесс подготовки специалистов в системе прикладного бакалавриата обеспечивает качественный результат, который детерминирует принципы проектной деятельности в дизайне. Это позволяет учебному заведению формировать компетенции, наилучшим образом соответствующие запросам динамично изменяющегося рынка труда, а обучающимся значительно расширить профессиональный кластер знаний, умений и навыков.

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Chernova Natalya,

Kazan (Volga Region) Federal University,

Naberezhnochelninsky Institute, Ph.D., Associate Professor

***The contribution of sociocultural theory to the problem
of instructional interactions in the second
language classroom***

The investigations of a great number of psychologists are devoted to second language learning not as the acquisition of a new set of grammatical, lexical, and phonological forms but as a struggle of concrete socially constituted and always situated beings to participate in the symbolically mediated lifeworld of another culture. According to sociohistorical and social constructionist theories the understanding of thinking, which is being constructed with words, unravels any language as the principal mediational means, and that human learning and development are inherently based on the foundation of social relations. The main idea of the article is to estimate classroom interactions and the foreign language acquisition in the groups where the studies are being held based on the English Language Textbook for Russian Learners by Chernova N.A., Kuznetsova Z.M. The textbook was compiled so that actual classroom practice allowed relating human mental functioning to the cultural, institutional, and historical settings. A foreign language is a tool, which is available through participation in societal contexts. The achievement of this aim is very complicated if you take into account standard theories of language development. Overcoming the dichotomy between the individual and the social in language acquisition studies helps to make use of the interpretive tools of sociocultural theory to investigate the dynamics of classroom foreign language acquisition. Thus, the author tries to show how sociocultural theory can begin to unravel the difficulties of instructional interactions in a classroom. The background to the classroom investigation is provided by five standard theories of language acquisition, such as correlational studies, case studies, survey research, experimental research and ethnographic research with their epistemology and ontology. Taking into account Vygotskian perspectives on learning and development, special attention should be drawn to four themes: 1) language,

cognition, and communities; 2) language-based theories of learning and semiotic mediation; 3) private speech; 4) activity theory. In English Second Language (ESL) classes, the author recorded and transcribed interactions and analyzed whether they stay close to the discourse. The references to the classes are empiric but not experiential. Attendance of the classes provides an opportunity to observe and notice the special complexity of the classroom through such research methods as grounded theory, biography, discourse, ethnographies, case studies, narrative inquiry, and analysis. Every opportunity was used in the process of compiling the above-mentioned Textbook in order to show how sociocultural theory can be helpful in better understanding the instructional completeness of the foreign and second language classroom events, including the discursive interactions.

As far as J. Smith concerns the private speech in the study, he applies this concept to direct instruction during grammar lesson in an ESL class. Being operationalized as a verbal attempt of self-regulation during problem-solving tasks, that is, the result of stress that accompanies constructing meaning in L1 or L2, the private speech is distinguishable from the interpersonal communication. J. Smith's study contributes significantly to understanding the intersubjective nature of teaching, to realizing connection between speaking and thinking, and pedagogical importance of thinking mediation through student's private speech in the process of the problem-solving talk. The English Language Textbook for Russian Learners by Chernova N.A. has been intended for the students specializing in the field of “Sociocultural Service and Tourism” [3]. The author paid special attention to including some tasks, provoking all (private and social) speech in a dialogical context because overt speech in the social context of problem solving is made public for both the speaker and the hearer. Especially, in the frames of this specialty, when incomprehensible utterances can serve as a cognitive tool for mediating and navigating a tourist and a manager to eventual shared understandings and problem solutions.

A group of scientists regards Instructional Conversations as a mediational tool for ESL development (D. Wood, J. S. Bruner, and G. Ross). The whole idea is based on Vygotsky's supposition that the origins of learning, development, and human action comes back to conversation and the semiotic mediation that those provide the novice [2]. Vygotsky's instrumental method in the form of Instructional Conversations comprises two important aspects of language and learning. On the interpsychological plane, any language serves as psychological tools of communication and sharing

cultural meanings. On the intrapsychological plane, they affect learning and cognitive development. Any experienced ESL teacher must be able to make a classroom episode be *conversational*, under the circumstances of attention to coherence, distributed turn taking, focus on new information, spontaneity and unpredictability. These conversations can be admitted *instructional* because the discussion is being shaped toward a curricular goal that in its turn builds or activates background knowledge in students [1]. Direct instruction or modelling are used to promote more complex language expressions, at the same time, questions help students to expand, elaborate or restate their statements and replies. Instructional conversations give an opportunity of students' socializing into language learning in rich contexts in order to facilitate language growth and development. The fact of a wider range of communicative and cognitive functions of talk let students experience how language is used outside of the classroom as opposed to current models of input, output, and interaction. The convergence of thinking with culturally created mediational artifacts, above all those which are linguistically organized (for example, conversations, metaphors, narratives, poetry, writing, etc.) occurs in the process of internalization, or the reconstruction on the inner, psychological, plane, of socially mediated external forms of goal-directed activity. A long-time research fulfilled in the process of compiling a PhD scientific study let the author conclude that instructional conversations in elementary and intermediate foreign language classes emerge from time to time. It is possible only in case of departure from the predictable pattern: a) management (vocabulary practice exercises); b) exercise (completing textbook exercises); c) extension (spontaneous questions and comments). Teaching must become much more flexible than it currently is. It must break from the notion of ready-made lessons that are rigidly adhered to in favor of improvisation. This does not mean an 'anything goes' approach. The author tried to avoid the traditional, textbook-based forms of contextualized language practice, most commonly associated with foreign language classrooms while preparing the English Textbook for Russian Learners [4]. The thing is that management talk and extension activities are the forms of instructional conversations and not the "contextualized" exercises of the textbook. The English Language Textbook for Russian Learners by Chernova N. A. allows the teacher to talk to the class as a co-participant in the interaction. The content of the Textbook presents all necessary language material and teaching

techniques to conduct a pattern where the teacher responds to comments of one student, poses questions of another, and, allows for student self-selected turns.

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Bukatova Oksana,
*Izmail State Humanitarian University,
Associate Professor, Ph.D., Department of Technological, Vocational
Education and General Technical Disciplines*

Theoretical preconditions of educational preparedness for future teachers to interact with students

Букатова Оксана,
*Ізмаїльський державний гуманітарний університет,
доцент, кандидат педагогічних наук, кафедра технологічної,
професійної освіти та загальнотехнічних дисциплін*

Теоретичні передумови формування педагогічної готовності майбутніх учителів до взаємодії з учнями

Постановка наукової проблеми та її значення. XXI століття — це час кардинальних змін в нашій державі, і особливо — у соціальній сфері. Загальновідомим є твердження, що для того, аби суспільство ефективно виконувало поставлені перед ним завдання, воно повинне бути високоосвіченим. І у цьому змісті однією з найважливіших передумов цивілізованого людського існування є сучасна система освіти.

За всіх часів центром такої системи був, є і залишається вчитель, який дає знання і розвиває духовний світ учнів. Соціальна місія вчителя незамінна в сучасному суспільстві. Тому вища педагогічна школа повинна випереджати соціальні зміни, що відбуваються у суспільстві, і готувати своїх студентів — майбутніх учителів до життя й творчої роботи у швидкозмінних умовах, оскільки саме вони формуватимуть майбутнє українське суспільство.

Таким чином, формування педагогічної готовності майбутніх учителів до здійснення професійної діяльності та педагогічної взаємодії з учнями на сьогоднішній день залишається пріоритетним напрямком навчально-виховного процесу у вищих педагогічних навчальних закладах.

Аналіз досліджень цієї проблеми. Відзначимо, що питання професійної підготовки майбутнього вчителя в сучасній вищій школі вивчалися багатьма науковцями (В. Луговий, І. Зязюн, С. Гончаренко, С. Капітанець, В. Кремень, О. Глузман, О. Пехота, С. Сисоєва та ін.). Однак проблеми виявлення умов, які забезпечують педагогічну готовність майбутніх учителів до взаємодії з учнями, залишаються недостатньо дослідженими на сучасному етапі. Ці аргументи стали основними до написання статті.

Мета і завдання статті визначені виокремленням педагогічних умов, які сприятимуть формуванню педагогічної готовності майбутніх учителів до професійної діяльності та педагогічної взаємодії з учнями.

Виклад основного матеріалу й обґрунтування отриманих результатів дослідження. Розглядаючи теоретичні передумови формування педагогічної готовності майбутніх учителів до взаємодії з учнями, насамперед, визначимо понятійну базу дослідження.

Так, одним з важливих понять даного дослідження виступає поняття «формування». У педагогіці дане поняття трактується як процес зміни особистості в ході її взаємодії з оточуючою реальністю, дійсністю, що включає появу фізичних і соціально-психологічних новотворів у структурі самої особистості. На нашу думку, процес формування особистості майбутнього учителя повинен припускати таку побудову навчально-виховного процесу у вищому навчальному закладі, при якій студент виступатиме:

- а) носієм (провідником) засвоєних ним професійних знань, умінь та цінностей, які утворюють структуру професійно значимих якостей;
- б) об'єктом впливу соціально-педагогічних умов;
- в) суб'єктом, який активно перетворює навчально-виховну діяльність і себе самого та орієнтований на повну самореалізацію в професійній діяльності [1].

Наступним важливим поняттям дослідження є поняття «педагогічна готовність». В останні роки з'явилася достатня кількість наукових досліджень, присвячених питанням педагогічної та професійної підготовки студентів, зокрема, готовності студентів — майбутніх учителів — до різних видів діяльності.

У сучасній психолого-педагогічній літературі чітко виділилося два основних підходи до даної проблеми. Перший підхід припускає оцінку готовності як певного функціонального стану. Другий підхід інтерпретує готовність як

психологічну підготовленість до діяльності. При цьому психологічна підготовленість розглядається як стійка характеристика особистості до діяльності, як цілісний комплекс, який включає в себе мотиваційний, інтелектуальний, емоційний та інші компоненти, адекватні вимогам змісту й умовам діяльності [2].

Щодо педагогічної готовності, то А. Ліненко називає її синонімом професійної готовності майбутніх учителів до здійснення ними професійної діяльності. Оскільки саме у педагогічному вищому навчальному закладі в процесі навчання формуються основи педагогічної майстерності, закладається підґрунтя готовності до майбутньої професійної діяльності вчителя. Формування готовності майбутніх учителів до професійної діяльності — це, перш за все, нагромадження знань, умінь і навичок практичної діяльності. Поняття «готовність до педагогічної діяльності», на думку А. Ліненко, включає педагогічну самосвідомість, інтерес до педагогічної діяльності та потребу в ній, мотиви діяльності, педагогічні здібності, теоретичні знання предмета й способів діяльності, навички й уміння, професійно значущі якості майбутнього педагога [3].

Нами педагогічна готовність майбутнього вчителя розглядається як інтегративна якість особистості, яка включає педагогічну свідомість, самостійність емоційного позитивного ставлення до педагогічної діяльності, швидкість адаптації особистості в різних педагогічних ситуаціях, доцільність педагогічних дій, рівень сформованості педагогічних здібностей, володіння педагогічним тактом і технікою міжособистісного спілкування.

Наступним важливим поняттям нашого дослідження є «взаємодія», зокрема – «педагогічна взаємодія», що визначається як процес, який відбувається між вчителем та учнем у ході навчально-виховної діяльності і спрямований на розвиток особистості учня. У даному контексті педагогічну взаємодію доцільно розглядати як розвиваючий процес, що сприяє становленню особистості учня й удосконаленню особистості вчителя при неодмінній керівній ролі останнього [4].

Поєднуючи розглянуті вище поняття «формування», «педагогічна готовність» та «взаємодія» («педагогічна взаємодія»), зауважимо, що процес *формування* (зміна особистості студента в ході навчально-виховного процесу у вищому навчальному закладі) *педагогічної готовності* (упевненості у власних знаннях, уміннях і навичках практичної діяльності і можливості їх успішного використання в умовах навчально-виховного процесу школи) *майбутніх учителів до взаємодії* (розвиваючий процес, який сприяє становленню особи-

стості учня й удосконаленню особистості вчителя) з *учнями* найефективніше здійснювати в умовах вищого педагогічного навчального закладу у ході навчально-виховного процесу.

У ході здійснення процесу формування педагогічної готовності майбутніх вчителів до взаємодії з учнями доцільно виокремити та ввести у навчально-виховний процес вищої педагогічної школи педагогічні умови, які підвищують ефективність діяльності у зазначеному напрямку.

Під науковим терміном “педагогічні умови” у даному дослідженні будемо розуміти взаємопов’язану сукупність внутрішніх і зовнішніх параметрів, які забезпечують високу результативність процесу формування у майбутніх вчителів усіх компонентів готовності до педагогічної взаємодії з учнями [5]. Зазначимо, що педагогічні умови були визначені нами, виходячи із теоретичних та практичних основ організації навчально-виховного процесу у ВПНЗ. Зокрема, педагогічні умови виокремлено таким чином, щоб вони максимально впливали на всі компоненти готовності майбутніх вчителів до педагогічної взаємодії з учнями.

Отже, ми вважаємо, що ефективний вплив на формування готовності майбутніх вчителів до педагогічної взаємодії з учнями в умовах школи ВПНЗ забезпечують такі педагогічні умови:

- підвищення мотивації до професійної діяльності та формування професійних ціннісних орієнтацій (мотиваційний і ціннісно-орієнтаційний компоненти);
- застосування інтерактивного підходу до організації процесу підготовки майбутніх вчителів (комунікативно-інформаційний компонент);
- розвиток творчого потенціалу майбутніх вчителів (креативний компонент);
- підвищення педагогічної компетентності майбутніх вчителів (операційно-діяльнісний компонент).

На нашу думку, виокремлені педагогічні умови забезпечать ефективне формування готовності майбутніх учителів до педагогічної діяльності та взаємодії з учнями.

Готовність майбутніх вчителів до педагогічної взаємодії суттєво залежить від мотиваційної сфери студента та ступеня сформованості його ціннісних орієнтацій. Ми вважаємо, що мотивація є передумовою поведінки особистості, яка спонукає, спрямовує й організовує поведінку, а також надає особистісного

смыслу та значущості майбутній професійній педагогічній діяльності. У разі наявності позитивно спрямованої мотивації професійна діяльність та педагогічна взаємодія учнями набуває чіткого особистісного змісту, що сприяє перетворенню із зовнішньо сформульованих цілей у внутрішні особистісні потреби. Для реалізації зазначеної педагогічної умови пропонуємо ввести у навчально-виховний процес підготовки майбутніх вчителів до професійної діяльності та педагогічної взаємодії з учнями цікаві практичні завдання, розв'язання педагогічних задач, моделювання педагогічних ситуацій, змагання тощо.

Вагому роль, на нашу думку, у становленні професіонала відіграють ціннісні орієнтації. Адже саме професійні ціннісні орієнтації особистості визначають ступінь її включення в суспільство шляхом визнання нею професійних суспільно значущих цінностей. З метою розвитку ціннісних орієнтацій студентів доцільно реалізовувати різноманітні просвітницькі заходи, наприклад, інформаційно-просвітницькі повідомлення, що супроводжуються оцінкою та коментарем педагога стосовно того чи іншого переконання, життєвої позиції.

Щодо застосування інтерактивного підходу до організації процесу підготовки майбутніх вчителів, то тут варто зауважити, що соціально-економічні і політичні перетворення в суспільстві, вступ України в світове освітнє поле суттєво змінили підходи до організації освітніх процесів у системі вищої освіти. Інтерактивне навчання передбачає навчання в процесі спілкування, комунікації, коли сама навчально-комунікаційна діяльність перетворюється на засіб навчання. Для практичної реалізації зазначеної педагогічної умови доцільно розробити та підготувати інформаційну базу (тексти лекцій, комп'ютерне й інформаційне забезпечення), яка забезпечуватиме повну можливість студентів отримувати наукову інформацію на рівні завдань, які стоять перед їхньою спеціальністю.

Щодо третьої педагогічної умови — розвитку творчого потенціалу майбутніх вчителів, то варто зауважити, що стимулювання педагогічної творчості сприяє самовтіленню творчого потенціалу майбутнього вчителя. Одним із напрямів реалізації зазначеної педагогічної умови в навчально-виховному процесі може стати впровадження активних форм і методів навчання, які сприяють досягненню очікуваних результатів (проведення семінарів-тренінгів, створення ситуативних творчих груп з вирішення актуальних проблем, організація педагогічної практики тощо).

Якщо розглядати четверту педагогічну умову — підвищення педагогічної компетентності майбутніх учителів, то зауважимо, що майбутній вчитель фор-

мується під домінуючим впливом особистості і діяльності викладача, який є основним транслятором освітнього досвіду. Саме тому, на нашу думку, операційно-діяльнісний компонент готовності майбутніх учителів до професійної діяльності та педагогічної взаємодії перебуває у прямій залежності від педагогічної компетентності викладацького складу ВНЗ.

Висновки і перспективи подальшого дослідження. Процес формування педагогічної готовності майбутніх учителів до взаємодії з учнями найефективніше здійснювати в умовах вищого педагогічного навчального закладу у ході навчально-виховного процесу. В той же час, процес формування педагогічної готовності майбутніх учителів до професійної діяльності та педагогічної взаємодії з учнями буде відбуватися успішно та значно ефективніше, якщо створити відповідні педагогічні умови, які включатимуть: а) підвищення мотивації до професійної діяльності та формування професійних ціннісних орієнтацій (мотиваційний і ціннісно-орієнтаційний компоненти); б) застосування інтерактивного підходу до організації процесу підготовки майбутніх вчителів (комунікативно-інформаційний компонент); в) розвиток творчого потенціалу майбутніх вчителів (креативний компонент); г) підвищення педагогічної компетентності майбутніх вчителів (операційно-діяльнісний компонент).

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Oxana Posukhova,

Southern Federal University,

*Associate Professor, Institute of Sociology and Regional
Studies, Russia, Rostov-on-Don*

The Channels of Professional Career in the Russian Society: Demand and Performance

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Problem statement and its scientific value. The rapid development of society, the emergence of new professions transform the available professional structure of society with established professional roles. The emergence of new professional roles and statuses causes a significant increase in professional movements, frequency and speed. The possibility of career movements is caused by the availability and functioning of different types of channels: both group and individual, formal and informal, mass and exclusive.

Taken as a whole, the channels create a system of institutional and legal requirements, organizational opportunities, specific rules of horizontal or vertical advancement of professional actors, forming complex mechanisms of selection for a variety of professional positions, roles and statuses. The combined effect of these mechanisms facilitates the ability to maintain or achieve a better social status. One opportunity to change the social status is a successful professional career, but its success is the result of the right strategy selected where channel selection and the method of its realization are of great importance.

Review of the researches on this problem. Issues related to professional career are relatively a frequent subject of sociological research: the theoretical aspects are studied by Shapovalov V.K. [1], Zhdanovich A.A. [2], Kornienko O.Yu. [3]; the specifics of careers in various professional fields are studied by Musina-Mazanava G.Kh. [4], Manerova O.A. [5], Denisova V.G. [6]. But the issue of the channels' status in the context of a professional career has not yet received a proper understanding. That is why based on the analysis of sociological researches this article aims at identifying channels to promote a professional career. The tasks set

include: to identify effective and ineffective channels of employment as the initial stage of realization of professional career; identify massive and exclusive channels of professional career in the active phase; and to analyze which components of symbolic capital one should possess for the success of a professional career.

Research findings. Social study was conducted in the summer and autumn of 2015 in the city of Rostov-on-Don applying the method of standardized interview. 554 people were polled, including 45% of men and 55% women. A distribution by age groups was as follows: 23-29 y.o. - 18.9%; 30-34 y.o. - 24.9%; 35-39 y.o. - 26.6%; 40-44 y.o. - 15.5%; over 45 - 14.1%.

Professional career includes several phases: initial (including the employment stage), active realization, stabilization, completion.

In the initial phase, at the entry stage 26.4% of the respondents have been employed with the help of their relatives, friends and acquaintances; 21.8% have been employed through a direct appeal to the employer; 14.7% were looking for work themselves. As the table shows, informal channels are more in demand, while the formal channels (public employment service, employment agencies) are in the area of outsiders. This uneven demand can be explained from the standpoint of efficiency/inefficiency of these channels. According to the respondents, informal channels appear to be the most efficient at the stage of employment.

**Distribution of the respondents’ answers to the question
“How have you been employed?”**

SN	Criteria	Employment method, %	The most efficient in job search, %
1	With the help of relatives, friends and acquaintances	26.4%	32.5%
2	Through advertisement in the media	4.8%	5.6%
3	Through direct appeal to the employer	21.8%	21.2%
4	With the help of the Chair, scientific advisor	12.2%	12.3%
5	State Employment Service	5.1%	8,5%
6	Internet resources (Head hunter, Superjob, etc.)	10.2%	15,4%
7	Employment agencies	2.3%	3.7%
8	Was in search for work myself	14.7%	-
9	Other	2.5%	1%

To be competitive in the labour market and have the opportunity to build a professional career, according to the respondents, one must have the following skills and qualities attractive to employers: good professional knowledge (25.4%), work experience (19.3%), good personal potential (17.4%), willingness to work irrespective of wage size (13.2%), willingness to retrain easily (9.1%), to be a graduate of a particular educational institution (8.2%), the ability to present yourself (7%).

The introduction of availability criteria in the typology of the professional career channels allowed singling out mass and exclusive channels. Mass channels are channels available to the majority, exclusive channels are available to minority, they limit access and movement to the professional statuses and positions.

According to 76.2% of the respondents, higher education is available to the majority; 57.8% believe that there are no restrictions for access to such a method as advanced training and acquiring new knowledge. The availability of the educational channel is guaranteed by the Federal Law "On Education". 44.0% believe that participation in professional competitions also does not limit the number of professional actors which use it. Availability of professional competitions as a way to a successful professional career is due, firstly, to the placement of information in the public space, and secondly, to a significant number of them in every professional field.

With regard to channels available to minority, according to 91.7% of the respondents, this channel is an internship in foreign companies. Exclusivity of this channel is due to the fact that the main condition for its use is fluency in a foreign language not lower than C level, which includes a number of established general European competencies.

Another exclusive channel conducive to successful professional career is training in Russian large successful companies, such opinion is shared by 79.8% of respondents. Success of the Russian companies is defined by the revenue and capitalization. By results of 2015 successful Russian companies include Lukoil, Surgutneftegaz, Magnit, Vimpelcom, X5 Retail Group, Megapolis GC, Evraz, Tatneft, Norilsk Nickel, Bashneft [7]. Internships at companies have significant potential to improve professional positions and contribute to a successful professional career.

75.9% of respondents believe that chief's patronage is also available for a limited number of professional actors. Patronizing is possible for several reasons: by the principle of professionalism, by the principle of expatriates' community, by the

principle of kinship relations, by the principle of sympathy, of friendship. According to 23.8% of the respondents, patronage by the principle of professionalism can contribute to a successful professional career; 15.2% of respondents believe the patronage based on personal sympathy and the ability to please superiors would contribute.

Such way as federal and regional retraining programs occupy a solid fourth ambivalent position: according to 39.4% of the respondents this method is available to the majority, according to 60.6% it is available to a limited number of people. These programs are aimed at training highly competitive professionals. The ambivalence of the interpretation of these programs is due to two factors. Availability is due to their information transparency, inaccessibility is due to their competitive nature, high requirements for the candidates and small number of quotas available. For example, available Presidential Management Training Programme promotes professional and career growth of young leaders. About a quarter of graduates note fastest job growth. Annually 300-400 graduates go to work for state authorities and local governments.

In modern society, while realizing a professional career the main emphasis on the mechanisms of social mobility is transferred to education and training, thus increasing the role of the individual qualities of the person seeking to improve its position. In modern conditions the individual qualities that contribute to a successful professional career can be seen as a kind of symbolic capital. Symbolic capital is a non-economic capital, everything that is beneficial and facilitates social exchange and the achievement of targeted results. Favourable conditions for the accumulation of a particular type of capital creates a society itself, it also defines what kinds of symbolic capital are effective and in demand.

According to 53.1% of the respondents, it is very important for a successful career to have a high professional level; for 49.8% of the respondents responsibility and sense of duty are very important in the realization of the professional career; for 46.2% purposefulness, ambition, assertiveness are very important; for 44.4% communication skills (communicability, self-confidence, optimism, empathy) are important.

Compliance of work performed with the education and specialties obtained (46,6%); continuous training and getting new knowledge (48.0%); high-ranking relatives (44.0%); building and maintaining good relationships, friendship with the

"right" people (47.3%); good fortune and luck (46.5%); health (43.0%); beauty, youth, stylish and fashionable appearance (39.0%); talent, creativity (57.9%) are important for successful realization of the professional career. Sexual relations with the chief are considered as a very important capital only by 5.8% of the respondents, the greater part - 57.4% - consider these relations as not important at all for a successful professional career. 39% of respondents believe that the availability of economic capital will also contribute to a successful professional career. They link it to the purchase of positions.

Conclusions. Formation of a professional career provides for the knowledge of those channels and methods that will help realize it. Demand for the channels is determined by market conditions and career stages. To date, informal channels are still in demand at the initial stage of a career realization and at the employment stage. Formal channels remain virtually out of demand. Demand for these channels is due to the fact that it is them which are, according to the respondents, are effective at the initial stage.

The successful professional career, especially a vertical one, is characteristic for a limited circle of people. Accordingly, we can speak of the availability of channels which function is to achieve the career result targeted. The higher the result, the more unique and more hard-to-get-to the channel used is. Our research has shown that such channels as education, professional competitions are available to the majority. As for the exclusive channels, they include internships and patronage. In addition, according to the respondents, a successful professional career is contributed by the availability of symbolic capital which is based on ascriptive and personal qualities.

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Olga F. Guchinskaya,

ITMO University,

Ph.D. (Technical Sciences), Associate Professor,

the Chair of Social Sciences and Humanities

***Blended-Learning in postgraduate educational programs:
the effectiveness and perspectives***

О.Ф. Гучинская,

Университет ИТМО,

к.т.н., доцент кафедры социальных и гуманитарных наук

***Применение blended-Learning в последипломных
образовательных программах: эффективность
и перспективы***

Необходимость повышения адаптивности образовательных программ последипломного образования обусловлена стремительным развитием процесса глобализации во всех сферах человеческой деятельности, в том числе и в сфере образования. Динамика глобальных тенденций на рынке труда, появление новых профессий, связанных с развитием информационного общества, и развитие уже имеющихся форм занятости населения, актуализирует необходимость реализации принципов открытого образования [1]. В ходе модернизации системы образования в России в настоящее время разработан и реализуется Федеральный государственный образовательный стандарт (ФГОС) третьего поколения [2], осуществляется внедрение компетентностного (знаниевого) подхода, что предполагает увеличение спектра направлений подготовки, разработки новых и постоянное совершенствование существующих образовательных программ, уточнение и непрерывное дополнение спектра компетенций будущих выпускников, в том числе и на уровне postgraduate education.

Публикации таких российских и зарубежных авторов, как М.Ю. Абабкова, В.В. Барабаш, О.Б. Барабаш, Х. де Вит, И.В. Козьминых, Т.В. Котельникова, Н.В. Красильникова, Р. Кулен, И.Н. Кушина, В.В. Лоренц, И.В. Наятова, Е.Н. Никонова, И.Е. Петрова, Н.В. Поплавская, Б.А. Сазонова, О.А. Степаницкая, А.О. Чамчян, Ф. Хантер, Д.К. Худзик посвящены различным аспектам интернационализации образования [3-6].

Интернационализация в образовательной сфере обусловлена интенсивным развитием процессов глобализации, необходимостью постоянного расширения доступа обучающихся к источникам нового знания, подготовкой квалифицированных специалистов, которые конкурентоспособны на международном рынке труда, рядом других факторов. Значение интернационализации образования заключается в укреплении международных научных связей и решении проблем, возникающих в современном обществе. Процессы интернационализации осуществляются не только на государственном уровне (финансовая и политическая поддержка). Ключевую роль, по мнению специалистов, играют процессы, происходящие непосредственно в учебных заведениях [6]. Действительно, разработка содержания образовательных программ осуществляется непосредственно преподавателями той или иной дисциплины, что недостаточно эффективно для подготовки учебно-методических комплексов, а так же для унификации образовательных программ.

Что касается особенностей интернационализации в образовательной сфере, по оценкам экспертов только 20% студентов готовы сменить страну для получения образования – в этом случае реализуется так называемая «внешняя интернационализация», однако недавно появилось и понятие «внутренней интернационализации», которая более комфортна для большинства обучающихся, желающих расширить сферу своих компетенций посредством современных инфокоммуникационных технологий. Именно поэтому возникает потребность в интернационализации учебных программ и соответствующих учебных планов.

«Внутренняя интернационализация» – процесс, направленный на введение для всех студентов международного и межкультурного измерения формальных и неформальных элементов образовательной программы в рамках местной образовательной среды» [7].

Разработка образовательных программ последипломного образования и соответствующих учебных планов, а затем и комплексов учебно-методического обеспечения учебного процесса в том числе, и с учетом тенденций глобализации, представляет собой трудоемкий процесс, требующий значительных временных и финансовых затрат. Перед вузами стоит задача адаптации и корректировки образовательных программ и их содержания, разработки интернациональных учебных планов. Сокращение затрат на реализацию вышеуказанной задачи возможно за счет создания унифицированных модульных образовательных технологий, а именно – blended-Learning (или смешанного обучения), позволяющего интегрировать широкий спектр образовательных возможностей, приводящих в результате внедрения к повышению качества обучения.

Blended-Learning – современная образовательная среда, которая представляет собой сочетание аудиторного обучения с интерактивными и электронными образовательными инструментами. Исследования показали, что наиболее продуктивными являются правильно подобранные сочетания технологий электронного обучения (e-Learning), в том числе электронных дистанционных технологий (ЭДТ) и традиционных методов преподавания «Преподаватель-Студент» (Face-to-Face или F2F), включая различные интерактивные технологии обучения.

Применение смешанного обучения является не только эффективным и экономичным инструментом создания различных программ последипломного обучения, но и позволяет существенно расширить компетентностный диапазон обучающегося и вписывается в знаниевую парадигму последипломного образования, оставаясь инновационной за счет постоянного обновления встроенных в нее элементов. Применение blended-Learning удачно вписывается в реализацию личностно-ориентированного подхода, что предполагает разработку индивидуальных образовательных траекторий [8, 9]. Технология смешанного обучения является перспективной и является следующим этапом развития образовательных технологий, становясь все более популярным способом преподавания, обеспечивающим оптимальную результативность и являющимся доступным, экономичным, адаптивным образовательным инструментом.

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Olga Fedorova,

Izmail State Humanitarian University,

Associate Professor, Doctor of Physics and Mathematics,

Department of Technological, Vocational Education

and General Technical Disciplines

Training future teachers technology of physics - competence approach

Федорова Ольга,

Ізмаїльський державний гуманітарний університет,

доцент, кандидат фізико-математичних наук,

кафедра технологічної, професійної освіти

та загальнотехнічних дисциплін

Навчання майбутніх учителів технологій фізики – компетентнісний підхід

Постановка наукової проблеми та її значення. Концептуальною основою організації вищої освіти в умовах масштабних євроінтеграційних процесів ХХІ ст. є компетентнісний підхід, який спрямовує навчальний процес на формування в майбутнього фахівця соціально та професійно важливих компетентностей, які відповідають вимогам національного і світового ринків праці. Перехід на використання в практиці вищих навчальних закладів компетентнісно орієнтованих освітніх стандартів доповнює традиційні когнітивні підходи до навчання, веде до нового бачення його змісту, методів і технологій.

Проблемами навчання фізики студентів різного напрямку підготовки займалися багато вчених, водночас комплексні дослідження вивчення дисциплін фізико-математичного й технологічного циклів, у межах компетентнісної парадигми вищої технологічної освіти, у повному обсязі майже не проводилися. Зазначимо, що інтеграція фізичної й технологічної освіти, в процесі підготовки майбутніх учителів технологій, є однією з найважливіших проблем сучасної

системи підготовки педагогічних кадрів. Особливу увагу потрібно приділяти питанням розвитку професійних компетентностей майбутніх учителів технологій при навчанні фізики.

Сьогодні навчання майбутніх учителів технологій фізики ускладнюється існуючими протиріччями між такими ситуаціями:

- посилення ролі фізики в науково-технічних перетвореннях сучасного суспільства й зменшення обсягу фізичної освіти в підготовці вчителів технологій;
- зростаючий вплив інтеграційних процесів науки, техніки, технологій на перетворюючу діяльність людини й недостатнім рівнем інтеграції природничо-наукового й професійно-практичного циклів дисциплін;
- існуюче державне замовлення на підготовку вчителів технології й зміст їхньої професійної підготовки в педагогічних університетах.

Існування цих протиріч обумовило актуальність нашого дослідження. Часткове вирішення проблеми якості підготовки фахівців в сучасних умовах ми бачимо у компетентнісному підході до професійної підготовки майбутнього вчителя технологій.

Аналіз досліджень цієї проблеми. Проблема впровадження компетентнісного й особистісно орієнтованого підходів у системі вищої освіти взагалі та технологічної освіти зокрема ґрунтовно розглянута в дослідженнях О. Авраменка, С. Адама, А. Андрєєва, В. Байденка, І. Беха, Н. Бібік, В. Болотова, О. Заблоцької, Е. Зеєра, І. Зимньої, І. Зязюна, В. Краєвського, В. Кременя, О. Лебедева, І. Лернера, С. Гончаренка, Е. Лузік, О. Ляшенка, А. Мітяєвої, Т. Морозової, Н. Ничкало, О. Овчарук, С. Осіпової, О. Пометун, А. Протасова, Дж. Равена, О. Савченко, В. Серікова, А. Хуторського, О. Шавальової, В. Шадрікова та ін.

Мета і завдання статті полягають у висвітленні основних проблем компетентнісного підходу до підготовки студентів з фізики на технологічних спеціальностях педагогічних університетів.

Виклад основного матеріалу й обґрунтування отриманих результатів дослідження. Компетентнісний підхід у навчанні - це підхід, який виділяє результат освіти, а в якості результату важливо не кількість отриманої інформації, а здатність самим знаходити потрібну інформацію, вибирати спосіб дії в певних ситуаціях і, головне, застосовувати знання, вміння, навички.

Компетентності - це змістовні узагальнення теоретичних і емпіричних знань, представлених у формі понять, принципів, змістотворних положень.

Ключові компетентності багатофункціональні, міжпредметні і надпредметні, багатовимірні, тому технологія їх формування досить складна, проте ряд позицій компетентнісного підходу можна реалізовувати в освітньому процесі занять з фізики.

Розглянемо можливості предмета фізики у формуванні основних груп компетентностей.

Соціальні компетентності передбачають надання учням можливості проявляти ініціативу, брати на себе відповідальність, приймати рішення. Студенти вибирають варіант завдання або шлях розв'язання творчих чи експериментальних завдань. Переважно пропонують завдання трьох типів: а) роботи за зразком; б) логічної переробки вивченого; в) використання знань на практиці в ситуації, що приводить учня до нового результату або нового шляху розв'язання задачі.

Полікультурна компетентність. Студентів треба ознайомити з геніальними творіннями науки та техніки, які своїми знаменитими дослідженнями зробили великий внесок у наукову скарбницю людської думки. З виховною метою слід здійснювати народознавчий підхід у процесі викладання фізики, екологічну спрямованість.

Комунікативна компетентність виявляється через уміння висловлювати власну точку зору, брати участь у дискусії. Формується дана компетентність при проведенні нестандартних занять, занять-змагань, КВК, круглих столів тощо.

Інформаційні компетентності передбачають опанування інформаційних технологій, уміння самостійно здобувати та використовувати інформацію. Тому комп'ютер доцільно використовувати на всіх етапах процесу навчання: під час пояснення нового матеріалу, закріплення, повторення, оцінюванні навчальних досягнень. Ефективно проходять заняття з фізики з використанням педагогічних програмних засобів, готових комп'ютерних моделей (дослідження процесу), комп'ютерного моделювання процесів, які вивчає фізика.

Для формування компетентностей студентів навчальні заняття з фізики необхідно планувати таким чином, щоб вони сприяли придбанню навичок самостійного пошуку відповідей на поставлені питання, вирішення проблемних ситуацій, вміння аналізувати факти, узагальнювати і робити логічні висновки.

Формування компетентностей з фізики майбутніх учителів технологій може здійснюватися через розв'язання фізичних задач практично спрямованого технічного змісту та вирішення завдань пошуково-творчого характеру. Такі завдання та задачі включаються до змісту лабораторних робіт та практичних занять. Завдання можуть мати як індивідуальний, так і колективний характер.

Ніякі теоретичні знання не можуть так сприяти розвитку здібностей до дослідницької діяльності, як практичні вміння й навички. Ці здібності формуються в процесі практичної діяльності, самостійного висування гіпотези, нехай навіть при рішенні не складних наукових і технічних проблем. Такі здібності слід розвивати на лабораторних заняттях з фізики.

Лабораторні роботи з курсу загальної фізики передбачають виконання завдань пошуково-творчого характеру, що вимагають нестандартного підходу до їхнього рішення. Такі завдання пов'язані зі знаходженням інших (альтернативних) способів: визначення фізичних величин, встановлення закономірностей між досліджуваними фізичними явищами, визначення методики проведення експерименту, знаходження фізичних принципів для рішення різноманітних проблем. В методичні рекомендації до лабораторних робіт необхідно включати експериментальні завдання, для виконання яких можна використати встаткування даних лабораторних робіт. Яким чином і які величини необхідно виміряти, визначає сам студент. Рівень складності завдання визначається індивідуально, враховуючи здібності студента, його досвід. Виконання найбільш складних завдань може бути обмежено формулюванням проблеми, висуванням гіпотези.

Формування компетентностей з фізики повинне відбуватись під час виконання видів навчальної роботи студента в університеті, на аудиторних та позааудиторних заняттях. Крім цього, необхідні спеціальні заняття з розвитку загальних компетентностей і спеціальні курси з формування навичок конструювання об'єктів техніки й проведення педагогічних досліджень.

Реалізувати складові системи компетентнісної підготовки студентів, майбутніх учителів технологій можна на практичних та лабораторних заняттях з фізики за такими темами:

- Практичні заняття: «Кінематика обертального руху», «Закони збереження в механіці руху», «Основи термодинаміки», «Напівпровідники», «Постій-

ний струм», «Магнітні явища», «Електромагнітні коливання і хвилі», «Геометрична оптика», «Теорія будови атому», «Ядерна фізика».

- Лабораторні заняття: «Вимірювання густини тіла методами гідростатичного зважування», «Вивчення закону обертального руху на прикладі Обербека», «Вимірювання логарифмічного декременанта затухання фізичного маятника методом порівняння амплітуд», «Вимірювання коефіцієнта об'ємного розширення рідин методом Дюлота–Пті», «Дослідження залежності опору надпровідників від температури», «Зняття вольт амперної характеристики напівпровідникового діода», «Дослідження паралельного резонансу в колі змінного струму», «Визначення показника заломлення світла», «Вимірювання радіуса кривизни лінзи за допомогою кілець Ньютона», «Визначення поляризації світла», «Визначення природної радіоактивності атмосферного повітря».

На лабораторних заняттях з курсу загальної фізики, додаючи до традиційних завдань питання й завдання техніко-технологічного характеру. Завдання можуть містити питання з вдосконалення лабораторного устаткування, методів проведення вимірів, використання даних, отриманих у ході виконання роботи для визначення інших фізичних величин, складання обчислювальних й якісних завдань тощо [4].

Результати нашого дослідження свідчать про те, що важливим етапом процесу пізнання є побудова абстрактної моделі досліджуваного явища. На нашу думку, саме невміння будувати подібну модель становить одну з основних причин формального й поверхневого засвоєння знань, викликає утруднення формування гіпотези. Такі невміння досить сильно проявляються при виконанні завдань дослідницького характеру.

При вивченні фізичних теорій, дослідженні об'єктів і процесів необхідно прагнути до того, щоб студент будував образну або знакову модель. На етапі вивчення технічних об'єктів і технологій така модель дозволяє студентіві глибше проникнути у фізичну суть і принципи роботи машин, механізмів, технологічних процесів. У міру накопичення теоретичних знань, модель технічного об'єкта може уточнюватися, доповнюватися новими параметрами. При необхідності вона може істотно змінюватися, наближаючись до ідеальної моделі, яка достатньо точно описує реальний об'єкт. Ступінь адекватності створеної моделі реальному досліджуваному об'єкту визначає рівень і глибину знань студента. За рівнем наближення образної моделі до ідеальної, яка

достатньо точно описує реальний процес, можна судити про рівень фізичної підготовки майбутнього вчителя технологій.

Модельний підхід до оцінки рівня знань дозволяє простежити динаміку процесу формування й розвитку компетентностей з фізики і вчасно його корегувати.

Висновки і перспективи подальшого дослідження. Таким чином, процес навчання фізики майбутніх учителів технологій ми розглядаємо як комплексну проблему, яка включає формування й розвиток основних компетентностей особистості. Вирішувати її необхідно поетапно й систематично, починаючи з першого курсу.

Для ефективного набуття компетентностей у процесі навчання фізики необхідно звертатися до активних методів навчання, зокрема дослідницького. Дослідницький підхід використовується в усіх формах навчальної роботи: лекціях, практичних і лабораторних заняттях, при організації самостійних робіт, при роботі над студентськими проектами.

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Shapovalova Olga Evgenyevna,

Sholom-Aleichem Priamursky State University,

Professor, Doctor of Psychological Sciences,

Kerimova Inessa Bakhshalovna,

Sholom-Aleichem Priamursky State University, Master Student

Intellectual regulation of emotional manifestations of the mentally retarded pupils

Шаповалова Ольга Евгеньевна,

Приамурский государственный университет имени Шолом-Алейхема,

профессор, доктор психологических наук,

Керимова Инесса Бахшаловна,

Приамурский государственный университет имени Шолом-Алейхема,

магистрант

Интеллектуальная регуляция эмоциональных проявлений у школьников с умственной отсталостью

Утверждение в отечественной психолого-педагогической науке гуманитарных ценностей выдвигает достаточно высокие требования к качеству подготовки учащихся с легкой степенью нарушения интеллекта к самостоятельной жизни в обществе. Это акцентирует внимание специалистов на проблеме изучения и коррекции эмоционального развития при умственной отсталости. Для того, чтобы быть принятым обществом, человек должен соответствовать его ожиданиям, и в первую очередь это касается экспрессивно-коммуникативного поведения, в котором проявляются чувства, отношения и переживания.

Как показывают исследования О.К. Агавеляна, Л.С. Выготского, Л.В. Занкова, Н.Л. Коломинского, М.С. Певзнер, В.Г. Петровой, С.Я. Рубинштейн, Ж.И. Шиф и др., органическое поражение центральной нервной системы,

составляющее основу умственной отсталости, затрагивает не только познавательную, но и эмоциональную сферы. Причем, изменяются и сами свойства психики, и отношения между ними. По мнению Л.С. Выготского, слабоумного человека от нормального отличают именно особенности межфункционального взаимодействия интеллекта и эмоциональной сферы [1].

Работы А.Д. Виноградовой, К.С. Лебединской, В.И. Лубовского, Н.Г. Морозовой, В.Г. Петровой и др. свидетельствуют о том, что взаимодействие интеллектуального и эмоционального компонентов психики при умственной отсталости характеризуется заметным снижением интеллектуальной регуляции эмоциональных проявлений, склонностью действовать без рассуждений. В своих переживаниях, так же как и в мыслительной деятельности, умственно отсталые школьники затрудняются в отделении главного от второстепенного, поэтому они не могут оценить возможные последствия тех или иных событий, не корректируют своих чувств сообразно ситуации [2].

Исследования, выполненные преподавателями и магистрантами нашего университета, подтвердили низкий уровень интеллектуальной регуляции эмоций, который умственно отсталые школьники проявляют в учебной деятельности [3]; [4], в отношении к себе [5], в межличностном взаимодействии [6]. И младшие, и старшие учащиеся с нарушением интеллекта нередко совершают импульсивные поступки, необдуманно воплощают в поведении сиюминутные влечения. Бурные ссоры у них могут возникать по самому незначительному поводу, и даже присутствие педагога не всегда препятствует проявлениям вербальной и реальной агрессии. Особые трудности у таких школьников вызывает необходимость контролировать переживания, связанные с нежеланием преодолевать трудности, с подавлением значимых потребностей, с отсутствием успеха в различных видах деятельности и межличностном общении.

Целью данного исследования стало изучение интеллектуальной регуляции эмоциональных проявлений при умственной отсталости. Его конкретные задачи мы связали с выявлением способности старших школьников контролировать свои негативные переживания, управлять ими в реальной жизни и в экспериментальных ситуациях.

В исследовании были задействованы 56 учащихся 5–8 классов специального (коррекционного) образовательного учреждения. Длительное наблю-

дение за их поведением в обычной школьной жизни и в искусственно созданных экспериментальных ситуациях показало, что снижение интеллектуальной регуляции эмоциональных проявлений в значительной степени усиливается затруднениями в адекватном отражении других людей, их поступков, ситуаций, связанных с общением. Так, если наши испытуемые неадекватно воспринимали требования педагога (как несправедливые, обидные, тем или иным образом ущемляющие их интересы), они поступали наперекор или просто игнорировали их. Или, воспринимая того или иного нарушителя правил поведения как смелого, решительного и самостоятельного человека, многие школьники легко попадали под негативное влияние, начинали подражать его поступкам, не задумываясь о последствиях. Отметим, что под адекватным, контролируемым интеллектом отношением в подобных случаях нами понималось осуждение хулиганских действий, умение и желание противопоставить собственное мнение учащимся, проявляющим склонность к негативному поведению. Отношение к нарушению правил поведения как к проявлению смелости, самостоятельности, мы считали не критичным, а ориентация на подражание дурному примеру была показателем импульсивности поведения и его низкой интеллектуальной регуляции.

Было установлено, что интеллектуальная регуляция эмоциональных проявлений умственно отсталых учащихся резко снижается в конфликтных ситуациях. Осознание непреднамеренности нанесенной обиды не всегда помогает таким школьникам подавить негативную поведенческую реакцию, а те, кто воздвигает преграды на пути удовлетворения их потребностей, могут подвергаться оскорблениям, даже если это взрослые, уважаемые люди. Без специального обучения решению проблемных ситуаций учащиеся с нарушением интеллекта нередко проявляют негативное отношение к людям, готовность к грубости, агрессии, к поведению, затрудняющему устранение конфликта.

В процессе наблюдения выяснилось, что даже позитивные переживания наши испытуемые контролируют с трудом. Проявления радости и веселья у них нередко были достаточно бурными и неуправляемыми, но регуляция негативных эмоций все-таки вызывала особые трудности. Мы провели с учащимися беседу о том, что они обычно делают, когда испытывают грусть,

стыд, страх и гнев. Оказалось, что многие из них даже не осознают необходимости контролировать негативные эмоции, пытаться их преодолеть.

Всего было получено 224 ответа, которые разделились на 2 группы. Первая, доминирующая в количественном отношении группа объединила ответы, указывающие на низкий уровень интеллектуальной регуляции эмоций, на тенденцию «дать волю чувствам». Во вторую, значительно меньшую группу были включены ответы, отражающие попытки преодоления негативных переживаний (не всегда успешные). Отметим, что по результатам беседы учащиеся 7–8 классов показали несколько более высокий уровень интеллектуальной регуляции эмоциональных проявлений, чем учащиеся 5–6 классов, что говорит о возможностях ее развития в процессе коррекционного обучения и воспитания.

В первую группу вошли 68 % ответов. Большинство из них указывали на готовность школьников к яркой демонстрации своих переживаний без учета реакции окружающих людей:

- Ругаюсь или смеюсь;
- Тому, кто меня разозлит, плохо будет;
- Всех посылаю подальше;
- Пинаю что-нибудь, ломаю; и т.д.

Другие ответы этой группы отражали отрицание самой возможности переживания того или иного состояния. Они относились только к эмоциям страха и стыда. Считаем, что такое отношение к базовым эмоциям подчеркивает их значимость, а также особые трудности в преодолении и в социально приемлемом выражении:

- Я ничего не боюсь;
- Боятся только трусы;
- Мне никогда не бывает стыдно;
- Когда говорят: «Как тебе не стыдно», надо сказать: «Стыдно, у кого что-то видно» (смеется); и т.д.

В данной группе были и ответы, в которых говорилось о склонности школьников к переживанию неприятных эмоций в одиночестве:

- Ухожу куда-нибудь;
- Сажу одна, думаю о грустном;
- Если стыдно – ухожу, чтоб не смеялись;
- Пока злость не пройдет, не хочу никого видеть; и т.д.

Вторая группа объединила 32 % ответов, большинство из которых было получено от учащихся 7–8 классов. Одни испытуемые отмечали, что обычно стараются отвлечься от неприятного переживания, переключиться на что-либо другое:

- Думаю о чем-нибудь хорошем и забываю, что мне грустно;
- Говорю о другом, пою песни;
- Вспоминаю что-нибудь смешное;
- Веду себя так, как будто мне не стыдно; и т.д.

Другие ответы второй группы (правда, их было совсем мало) даже отразили осознание необходимости выявить и устранить причину эмоционального дискомфорта:

- Надо сделать так, чтобы не было стыдно;
- Если, например, стыдно потому, что с кем-то поссорился, то надо помириться;
- Я извинюсь и постараюсь больше так не делать;
- Постараюсь перебороть страх; и др.

Итак, интеллектуальная регуляция переживания умственно отсталыми школьниками неприятных эмоций в целом находится на низком уровне. При этом в наибольшей степени затруднен контроль над проявлением эмоции гнева. Многие учащиеся отмечали, что в гневе могут нагрубить не только сверстникам, но и взрослым, хотя и понимают, что этого делать не следует. Также выяснилось, что почти все наши испытуемые не могут затормозить негативное проявление даже в тех случаях, когда осознают, что объект, на который оно направлено, не имеет никакого отношения к причине гнева.

Несколько легче других неприятных переживаний умственно отсталые учащиеся контролируют эмоцию стыда, хотя некоторые отмечали, что удержаться от совершения поступков, за которые потом бывает стыдно, им удается далеко не всегда.

Таким образом, исследование подтвердило снижение уровня интеллектуальной регуляции эмоционального компонента психики, которое проявляется в импульсивном, ситуационно обусловленном поведении, что затрудняет общение умственно отсталых школьников с окружающими людьми и в целом адаптацию в обществе. В то же время выяснилось, что интеллектуальная регуляция эмоций у старших школьников с нарушением интеллекта

совершенствуется под воздействием коррекционного обучения и воспитания, но динамика ее развития проявляется достаточно слабо.

Полученные данные позволяют по-новому рассмотреть проблему умственной отсталости, шире использовать имеющиеся компенсаторные возможности психики таких детей.

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Sushko Ruslana,

*The National University of Physical Education and Sport of Ukraine,
the Sport Games Department, Lecturer*

Efficiency analysis of competitive activity of highly skilled basketball players Europe-2015

Сушко Руслана,

*Національний університет фізичного виховання і спорту України,
кафедра спортивних ігор, старший викладач*

Аналіз ефективності змагальної діяльності висококваліфікованих баскетболістів на Євро-2015

Постановка наукової проблеми і її значення. Проблеми багаторічної підготовки висококваліфікованих баскетболістів і шляхи їх вирішення знаходяться в центрі уваги фахівців внаслідок постійного підвищення конкуренції на рівні провідних національних команд. Спеціалісти-практики і вчені, в якості однієї з провідних, виділяють проблему визначення ефективності змагальної діяльності та аналізу її техніко-тактичних показників.

Аналіз досліджень даної проблеми. Змагальна діяльність у баскетболі має складну багаторівневу ієрархічну структуру [1]. Змагальну діяльність розглядають в якості системостворюючого чинника, який значною мірою детермінує побудову багаторічної підготовки висококваліфікованих спортсменів [2]. Авторами наголошено, що ефективність змагальної діяльності баскетболістів залежить від багатьох факторів, провідними з яких є показники техніко-тактичної майстерності [1,2,3].

Мета – дослідити ефективність змагальної діяльності національної та молодіжної чоловічих збірних команд України з баскетболу в фінальних частинах чемпіонатів Європи 2015 року.

Завдання:

1. Виявити ефективність реалізації основних техніко-тактичних дій команд призерів і українських команд в фінальних частинах чемпіонатів Європи 2015 року серед U-20 і національних збірних.

2. Порівняти ефективність змагальної діяльності висококваліфікованих баскетболістів з урахуванням вікових показників.

Виклад основного матеріалу і обґрунтування отриманих результатів дослідження. Україна виборола довіру ФІБА і право на проведення чемпіонату Європи з баскетболу 2015, який, на жаль, не відбувся на українських майданиках. Українська чоловіча збірна посіла 22 місце і після п'яти проведених ігор закінчила виступ на чемпіонаті Європи, тоді як фіналісти зіграли по 9 ігор.

Педагогічний аналіз ефективності змагальної діяльності висококваліфікованих баскетболістів чемпіонату Європи 2015 року серед чоловічих команд молодіжних і національних збірних підтвердив істину, що в баскетболі дрібниць не буває. Виявлено, що баскетболісти збірної Іспанії випередили суперників за показниками ефективності виконання 2-очкових, 3-очкових і штрафних кидків. Продемонстрували найбільшу кількість результативних передач – 185 і найменшу кількість втрат м'яча – 89, що дозволило вибороти золоті медалі чемпіонату. Натомість, баскетболісти збірної Франції були кращими в одному з ключових показників ефективності змагальної діяльності – підбираннях (374) і перехопленнях – 61.

На Євро-2015 серед молодіжних збірних у більшості показників ТТД домінували гравці збірної Сербії. Програвши в загальному заліку підбирання гравцям збірної Іспанії, сербські баскетболісти суттєво випередили суперників по фіналу за відсотком реалізації 2-очкових і 3-очкових кидків – 50,2% проти 43,2% та 37% проти 28,5 відповідно.

Аналіз ростерів команд-призерів дозволив визначити вікові діапазони гравців. Іспанці відібрали до збірної команди баскетболістів 1980 – 1994 р.н. (35 – 21 рік). До речі, найстарший представник команди гравець «Chicago Bulls» П. Газоль став найрезультативнішим у своїй команді (230 очок з 761 командного) і в чемпіонаті взагалі, набираючи в середньому 25.6 очок за гру. Литовська збірна була представлена гравцями 35 – 19 років (1980 – 1996 р.н.).

Таблиця 1

**Ефективність змагальної діяльності молодіжних і національних збірних –
призерів чемпіонатів Європи 2015 року, n=96**

Показники	Команди-учасниці чемпіонатів Європи з баскетболу 2015 року							
	I – місце Сербія	II – місце Іспанія	III – місце Туреччина	XII – місце Україна	I – місце Іспанія	II – місце Литва	III – місце Франція	X-XII – місце Україна
2-очкові кидки, n ₁ / n ₂	210/419	162/375	202/402	134/333	197/367	184/392	213/422	103/217
Ефективність,%	50.2	43.2	50.2	40.2	53.7	46.9	50.5	47.5
3-очкові кидки, n ₁ / n ₂	78/211	65/228	52/223	65/243	67/188	52/152	57/165	28/93
Ефективність,%	37,0	28.5	23.3	26.7	35.6	34.2	34.5	30.1
Штрафні кидки, n ₁ / n ₂	139/211	174/254	104/150	103/147	166/209	146/188	126/173	59/87
Ефективність,%	65.9	68.5	69.3	70.1	79.4	77.7	72.8	67.8
Передачі, n ₁	129	112	113	101	185	164	162	76
Перехоплення, n ₁	98	101	101	58	39	44	61	16
Блок-шоти, n ₁	28	43	46	18	36	26	36	7
Втрати, n ₁	144	149	156	129	89	128	114	66
Підбирання в нападі, n ₁	133	148	130	113	93	102	120	70
Підбирання в захисті, n ₁	276	289	253	242	238	241	254	121
Сума підбирань, n ₁	409	437	383	355	331	343	374	191

Примітки: n – кількість гравців, показники яких враховано; n₁ – загальна кількість техніко-тактичних дій; n₂ – кількість ефективних техніко-тактичних дій.

Д. Сабоніс (син легендарного Арвідаса Сабоніса) 1996 р.н. в 19 років також захищав і кольори збірної на чемпіонаті Європи 2015 року серед U-20. Вікові діапазони гравців збірної Франції 34 – 21 рік і представлені баскетболістами 1981 – 1994 р.н. 33-річний баскетболіст «San Antonio Spurs» Т. Паркер при амплу «розігравач» став другим за результативністю в команді.

За віковими особливостями у молодіжних збірних визначено тенденцію до збільшення кількості молодих гравців у ростері команди і зниження місця в турнірній таблиці. Чемпіони U-20, збірна Сербії, відібрали в команду виключно гравців 1995 р. н., за збірну Іспанії заявлено 3 баскетболісти 1996 р.н., бронзові призери чемпіонату Європи, збірна Туреччини, задіяли 5 гравців, а українська збірна була представлена 6 гравцями 1996 р. н., що складає 50% команди.

Висновки

1. Аналіз ефективності змагальної діяльності висококваліфікованих баскетболістів чемпіонату Європи 2015 року серед чоловічих команд молодіжних і національних збірних дозволив виявити лінійну залежність між результативно-значущими показниками ТТД і місцем команди в турнірній таблиці.

2. Виявлено, що вікові показники, в контексті досліджених фінальних турнірів чемпіонатів Європи 2015 року, не мають вирішального значення, але зберігають вплив на ефективність змагальної діяльності.

Перспективи подальших досліджень у даному напрямку ґрунтуються на необхідності вивчення та аналізу індивідуальних показників ефективності змагальної діяльності баскетболістів.

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Zabolotska Svitlana Ihorivna,

Drohobych State Pedagogical University by I. Franko,

Associate Professor, Ph.D. (Psychology),

Zamishchak Mariya Ihorivna,

Drohobych State Pedagogical University by I. Franko,

Associate Professor, Ph.D. (Psychology)

***Psychological assistance of the future pedagogue's
personal-professional formation in a pedagogical higher
educational establishment***

Заболоцька Світлана Ігорівна,

Дрогобицький державний педагогічний університет імені Івана Франка,

доцент, кандидат психологічних наук,

Заміщак Марія Ігорівна,

Дрогобицький державний педагогічний університет імені Івана Франка,

доцент, кандидат психологічних наук

***Психологічний супровід особистісно-професійного
становлення майбутнього педагога у педагогічному
університеті***

У сучасній Україні зростає запит на висококваліфікованих фахівців-педагогів. Тому перед вищим навчальним закладом стоїть першочергове завдання щодо формування самостійної та самодостатньої особистості, здатної до професійного розвитку, активної адаптації на сучасному ринку праці та творчої самореалізації.

Стратегія розвитку вищої освіти в нашій державі спрямована від стратегії «передачі знань» до стратегії забезпечення оволодіння студентами професійними компетенціями шляхом створення розвивального освітнього простору, який сприяв би професійному становленню активної особистості, зорієнтованої на особистісний та професійний саморозвиток. Професійне

становлення майбутнього фахівця обов'язково передбачає розвиток у нього аксіологічної спрямованості й професійної свідомості, соціального й професійного інтелекту, емоційно-вольової сфери, позитивного ставлення до світу і до себе, становлення самостійності, автономності й впевненості у собі; певних професійних якостей та аутокомпетентності [1]. Американський психолог А. Маслоу акцентує, що освіта має сприяти становленню такої людини, яка перебуває в русі, є творчою, імпровізаційною, довіряє собі, виявляє мужність і самостійність. Закликає допомогти досягти більшої досконалості в тому, чим вони вже є, і повніше й дієвіше розкрити в собі те, що вони мають потенційно.

Незважаючи на значну кількість наукових праць щодо різних аспектів професійної підготовки майбутнього педагога, проблема його особистісного розвитку в процесі професійної підготовки у вищому навчальному закладі та розробка педагогічних засад цього процесу потребують ґрунтовного дослідження комплексу психолого-педагогічних проблем: вивчення та деталізації понять "особистісний розвиток майбутнього педагога", „психологічні засади особистісного розвитку майбутнього педагога”; особливостей розвитку особистісних якостей майбутнього педагога в процесі професійної підготовки; організаційно-методичних умов та психологічних закономірностей особистісного розвитку майбутнього педагога в процесі професійної підготовки тощо.

З точки зору Е. Зеєра, «Психологічний супровід фахового становлення особистості – це складова частина професійної освіти, яка полягає в психологічній допомозі людині щодо подолання труднощів професійного життя, корекції деструктивних тенденцій розвитку, підвищення адаптованості майбутнього фахівця до соціально-економічних і технологічних змін, розвитку у нього позитивної професійної перспективи» [2, 266-267]. Головна мета психологічного супроводу особистісно-професійного розвитку студента визнається всіма суб'єктами освітнього процесу. У своїй діяльності супровід спирається на сучасні вимоги до фахівця, вимоги ринку праці; діяльність конкретизується: у створенні умов, що забезпечують успішний розвиток, саморозвиток і самореалізацію особистості студента як майбутнього педагога. Необхідною умовою забезпечення успішності освітнього процесу є реалізація системи психологічного супроводу професійно-особистісного становлення викладачів.

Психологічний супровід, як стверджує Е. Зеєр, повинен ґрунтуватися на принципах: урахування потреб особистості у самоорганізації, самовизначенні і

саморозвитку; признання пріоритету індивідуальності та самоцінності студента, який з самого початку навчання і є суб'єктом психологічного супроводу [3]. Ю. Слюсарев розглядає психологічний супровід як комплексний психологічний вплив на особистість, надзадачею якого є активізація саморозвитку людини [4]. Тому психологічний супровід майбутнього педагога має здійснюватись вже з перших днів навчання студента у педагогічному вузі.

У дослідженнях Е. Зеєра, Н. Глуханюк, було встановлено, що на початкових етапах фахового навчання джерелом професійного розвитку виступає рівень особистісного розвитку. На подальших етапах – співвідношення особистісного й професійного розвитку набуває характеру динамічної нерівномірної цілісності. На стадії професіоналізації фаховий розвиток особистості починає домінувати над особистісним і визначає його [5].

М. Савчин робить акцент на особистісний розвиток, який базується на характеристиці здорової особистості, моделі внутрішніх і зовнішніх умов ефективної професійної адаптації педагога [6]. Особистість – це цілісна психологічна структура, яка формується у процесі життя на основі засвоєння нею духовних та моральних ідеалів, суспільних форм свідомості і поведінки. М. Савчин [7] підкреслює, що педагогічна діяльність педагога є не просто професією – це покликання душі, яке допоможе забезпечити мотивацію цієї діяльності, попередити професійне вигорання. Проблема розвитку особистості майбутнього педагога – одна із актуальніших.

Особистість майбутнього педагога повинна володіти сильним, цілісним, не розколотим Я, в якому гармонійно поєднане індивідуально-неповторне та загальнолюдське. М. Савчин [8] акцентує, що особистість із сильним Я – розумна, мудра, досвідчена, щаслива. Вона ефективно рефлексує та трансцендентує, контролює та моделює свою діяльність та поведінку, володіє свободою та відповідальністю. Їй притаманні стани безпристрасності, безмовності, чесноти. Така особистість поповнює сили в духовній сфері, в такий спосіб долаючи свою слабкість, немочі, духовні, психічні та психологічні травми. Духовно розвинена людина проявляє свої позитивні моральні якості, що йдуть від глибин її душі. Індивідуальна мораль конкретної людини є відображенням соціальної та духовної моралі. Духовність, зазначає М. Савчин, – це вищий момент людської індивідуальності. М. Боришевський [9] стверджує, що духов-

ність є втіленням моральності у реальному контексті життєдіяльності особистості як носія високих гуманних чеснот.

Студент, як майбутній педагог, вже з першого курсу може зосередити свою увагу на своєму Я. У сучасних дослідженнях [10] виділяють такі функціональні аспекти Я: 1) подання про себе («Що я маю?»); 2) подання про особисті інтереси, сенси, цінності («Які мої пріоритети?»); 3) особисті стандарти, цілі («Яким саме я хочу бути?»); 4) оцінні стандарти, критерії самооцінювання («Я такий, яким повинен бути?»; «Який я в порівнянні з іншими?»); 5) оцінка релевалентності сфери оцінювання – пов'язана вона чи не пов'язана з особистими інтересами («Наскільки те, що я оцінюю, значуще для мене?», «Що значить для мене ця сфера оцінювання?»); 6) оцінка конгруентності – уявлення про себе такого, що відповідає особистим стандартам («Я ставлю за мету бути саме таким?»), цілям або не відповідає («Наскільки те, яким я себе оцінюю, відповідає моїм стандартам?»); 7) актуалізація самооцінювання – оцінка особистої значущості, власної цінності («Що це означає для мене?»); 8) емоційне ставлення до себе – почуття, емоційні реакції, зумовлені оцінкою себе («Наскільки позитивно я до себе ставлюся?»); 9) прояви самоефективності – оцінка власної ефективності в будь-якій сфері діяльності, впевненість у власній конкретно визначеній компетентності («Можу або не можу я це зробити?», «Наскільки я компетентний у цій галузі?»).

Під час аудиторних занять при вивченні курсу психології майбутній педагог розвиває у себе головні здатності людини, розвиває розум і життєву мудрість. Одночасно студент рефлексує, активно осмислює і переосмислює, самоаналізує, самооцінює, саморегулює свої цінності, ідеали. Рефлексія як внутрішня динамічна характеристика індивідуальності забезпечує процес смислотворення, в якому Я виступає точкою відліку для актуалізації та усвідомлення власних ставлень до всього, що відбувається як у внутрішньому, насамперед смислового та просторово-часовому континуумі, так і в зовнішньому світі, стверджує В. Семиченко [11].

Для розв'язання завдань особистісного розвитку досить ефективними є творчі завдання і ситуації моделювання, проблемні методи, тренінги, ділові, сюжетні і рольові ігри, які можна застосувати у процесі аудиторних занять при вивченні курсу психології.

Розвиток професійної індивідуальності студентів, як стверджує О. Сергєєнкова [12], доцільно розглядати як процес реалізації їхніх здібностей, прагнень до свободи, саморозвитку творчості. В такому контексті чіткіше відображається здатність студентів суб'єктувати процес професійного навчання. Шлях до суб'єкта – це шлях реалізації індивідуальності як властивості особистості, необхідної для оволодіння професійною діяльністю педагога. Індивідуальність – це передусім відповідальність особистості за власні вчинки та поведінку. М. Савчин [13], охарактеризував вияви її індивідуальності. Науковець виділив і обґрунтував етапи розвитку відповідальності, що стало важливим у методології розкриття мотивації становлення професійної індивідуальності. Саме етапи ініціювання, формування наміру, його реалізація, переосмислення поведінки після закінчення відповідального вчинку можуть слугувати розвитку професійної індивідуальності студентів. Сприяти становленню самого педагога, - на думку М. Савчина, - може лише високий професіоналізм і сучасний тип діалогічного мислення, висока духовна і комунікативна культура, толерантність, емпатійність, тактовність, високий рівень оволодіння технікою поведінки викладача психологічних дисциплін. Відтак завданнями професійної підготовки педагога мають стати систематизація знань, розширення професійного інформативного поля, розвиток дослідницької спрямованості особистості педагога, практико-зорієнтований характер його діяльності [14].

Отже, особистісно-професійне становлення майбутніх педагогів в умовах професійної підготовки буде ефективнішим, якщо ведучим способом і організаційною формою його реалізації стане психологічний супровід усіх суб'єктів педагогічного освітянського процесу.

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Tatyana Vorova,

Dnepropetrovsk National University,

Docent, Candidate of Philological Sciences,

Faculty of Ukrainian and Foreign Philology and Art Criticism

***Correlation of plotlines and themes in the fairy tales
«The Opal» by I. V. Kireyevsky and «Tale of the Golden
Cockerel» by A. S. Pushkin***

The creative heritage of I.V. Kireyevsky, which mostly consists of philosophical and aesthetic essays, is characterized by a depth of world outlook in its innovative conceptions and has been studied quite well in recent years. The author's ideas in philosophy and aesthetics made a noticeable impact on the development of Russian culture, the priority of its direction being aimed at the preservation of national originality.

In contrast to the exhaustively studied philosophical and aesthetic works by I. V. Kireyevsky (Vatsuro V. E. / Gippelson V. I. [1], Koshelev V. A. [3], Muller E. I. [7] et al.), the problems of the few literary works of the writer have turned out to be comparatively unattractive to specialists in study of literature, whose focus of attention has been drawn, basically, to the Slavophile viewpoint of the writer and, correspondingly, its reflection in the author's literary prose (Kuleshov V. I. [4], Kurilov A. S. [5], Mann Yu. V. [6] et al.). The author's single fairy tale «The Opal» is traditionally interpreted as a mystical work of art (Zhirmundsky V. M. / Astvatsaturov A. G. [2]), being the embodiment of the outlook of the writer who loved philosophy very much.

The purpose of the current study is to present a different approach to the fairy tale «The Opal» (1830) [9, p. 583-592] on the foundation of the comparative analysis of this work of art by I. V. Kireyevsky and «Tale of the Golden Cockerel» (1835) by A. S. Pushkin [8, p. 647-652], which might highlight little known facets in the creativity of this extraordinary writer. As far as is known, such an analysis is performed here for the first time.

It is particularly noteworthy that the twists of plot in these two fairy tales are almost identical: certain differences are observed in the details but not in the key

parameters. For the further investigation and analytical comparison of two works of art it is necessary to describe briefly the plot outline of the fairy tale «The Opal»: the tsar of ancient Syria – a perfect warrior Nurreddin – is insulted by the tsar of China Origell; seeking vengeance Nurreddin attacks and destroys the country of his offender, laying siege to the Chinese capital, the last stronghold of the emperor whose reign is drawing to a close. In despair the Chinese ruler asks a Dervish for help and defeats the Syrian tsar by means of a magical opal ring.

It should be noted that there exists a coincidence of common narrative background in both fairy tales – the brutalities of war (invasion, defence, usurpation of territories, downfall, death of soldiers in battles), maintenance of huge armies, suffering of the common people because of military operations and hostilities; the identity of the routine lifestyle of the fighting states is inherent in both literary works. However, the functions of Pushkin's protagonist Dadon are distributed between Origell and Nurreddin, representing a composite stereotypical portrait of the tsar-warrior of that epoch: both of them are real fighters; Nurreddin surrounded his crown with the «brilliance of war and victories» [9, p. 583], ascending the throne at the age of 16, his sword inflicted the marks of his «audacity» on his enemies in numerous battles; in his actions his military leadership is guided by the spirit of chivalry and laws of honour; the hero obtained sovereign power with his «good fortune and courage» [9, p. 583]; recognizing the beauty of danger in cruel combat as the only possible form of beauty in the world, he slaked his thirst for glory and fame with help of ceaseless battles and conquests. His rival just as accomplished a warrior, which is why they both are considered to be unsurpassed as war chiefs. It is not surprising that when the quarrel arose between the two mighty rulers only «the death of one of the kings became the single fair condition of peace» [9, p. 583]. In the course of a mere month Nurreddin coolly bent the Chinese state to his rough warrior's will, therefore there remained no alternative for Origell except to turn for possible help to the Dervish-sorcerer (this personage embodies the image-symbol of the dark aspect of the sinister-enigmatic black arts), who is the only person able to support the floundering sovereign facing an uncertain future. The functions of this character undoubtedly coincide with those of the sage / astrologer / eunuch from Pushkin's fairy tale, at least two of the three above-mentioned roles – the sage / astrologer – are used and textually confirmed in «The Opal». It could be presumed that the functions of eunuch are introduced in a hidden and non-evident way into the

description of the Dervish as a practitioner of black magic because, besides the Book of Heavens and the Book of Magical Symbols, he also reads the Black Book, which would fill an uninitiated with horror; in addition, the assistance that is promised by the practitioner of black magic on the part of his magical lord can be rendered only on the condition that the Chinese tsar is ready «to make a sacrifice» to the dark power. That is why the special «rite is performed» [9, p. 585] – *the rite of circumcision* as the physical pledge and tribute of devotion paid to *the dark lord*.

The Dervish-sorcerer finds the sought after chance to ensure Origell's triumph over Nurredin with the help of a beauty capable of raising the Syrian ruler's heart higher than his own star and of an old man capable of singing such a song that could bring the hero «into a faraway kingdom» [9, p. 585] (this spatially orientated formula gives the right for coincidence of the two literary works as a result of the localized unity of their places of action because the indication «a faraway kingdom» is met in Pushkin only in «Tale of the Golden Cockerel») [9, p. 647]. The Dervish's black art brings Nurredin's bright star down from the sky (the image-symbol of the hero's happiness, luck, courage and invincibility) and confines it in the opal set in the ring; the aged Dervish craftily delivers the ring to the tsar with the ambiguous comment that the sovereign will see *his fortune and perdition* in the ring. If before this plot twist the narration about Origell's mishaps coincides with the description of misadventures of tsar Dadon, who is constantly offended by wicked neighbours, afterwards, as the story unfolds, the active development of the plot (owing to the writer's will and imagination) passes to the other hero and is carried over the front line to Origell's rival Nurredin (without doubt, this method of the author is used not only for illustrating the reverses of military fortune but also for monitoring the mechanism of influence of the opal ring on the hero's personality). This kind of plot twist is absent in Pushkin's fairy tale: the poet simply introduces the brief information that after the appearance of the cockerel on the spire the aggressive neighbours did not dare bother the old tsar. However, it is not quite clear whether they were repulsed only by Dadon, or whether the might of the eunuch's magic also played its role. But this process is depicted distinctly and minutely by I. V. Kireyevsky (the description of the impact of the opal ring on Nurredin occupies nearly half the textual volume of the fairy tale, which proves the importance of this element). The significance of the introduction of the opal ring as magical artefact should be correlated with the influence of the golden cockerel on the spire as the same magical

artefact because both objects were received from the sorcerers in order to protect the state and defend it against attacks from the outside, but they do not guarantee safety against the inner enemy.

Looking at the opal for the first time out of mere curiosity, Nurredin experiences absolutely new feelings, unfamiliar to him earlier (attractive and tempting magical delight). The tsar is immersed in visions of an unknown planet where a beauty / maiden «in clothes of sun rays, girded with a rainbow and with a crown of bright stars» [9, p. 588] resides in a marvellous palace, she instantly wins the affection of the hero and charms him. In her presence the tsar forgets the war, is defeated by Origell in the decisive battle and agrees to an inglorious, shameful peace with his rival; however, the hero is not interested in affairs of state anymore, as he presses towards plunging into the alluring visions emanating from the opal again and again, having an unquenchable thirst to experience and feel the imperishable charm of the wonderful maiden with whom the formidable and cruel ruler falls in love *at first sight* (it should be stated that there is an evident correspondence between the first appearance of the maiden and her stunning effect on the hero and the similar awakening of love *at first sight* in Dadon after his meeting with the Shamahanskaya tsarina).

The tsar's visions in the realm of fancy are subdivided into the following stages: visions of the veiled maiden, the maiden without her veil, before receiving the kiss, during the process of receiving the kiss and her final disappearance (i. e. the maiden's disappearance can be considered to be natural in the plots of both fairy tales because in the ending of Pushkin's literary work the Shamahanskaya tsarina also suddenly vanishes as if she had not existed). A detail of no small importance is the following: the maiden demands from the tsar that he give her the opal ring as a pledge of fidelity and then disappears together with the ring (Shamahanskaya and the cockerel from the fairy tale of A. S. Pushkin also vanish simultaneously). Unbearable anguish oppresses the heart of the tsar, who tries to find the mysterious captivating maiden; however, the wise magicians dispel his illusion as there is only one star for every man; if it is lost, it is impossible to find a replacement for it. The culmination of the large-scale tragedy is the occupation of Syria by the armies of the Chinese emperor who, knowing the real underlying basis of the events, calls Nurredin's destiny «an example of vicissitudes of fate» [9, p. 592]. Thus, the maiden becomes the reason for the destruction of a powerful empire and

the dethronement of its leader (this is similar to the way the Shamahanskaya tsarina provokes the huge discord between the sovereign Dadon and his sage-hierophant, which leads to the ensuing downfall of the state in the absence of a ruler capable of governing).

At first formal glance, the hero, tempting providence, became the plaything of destiny, this was the reason for his tragic end: however, this is a facile solution as beneath the first level of simplistic understanding of the hero's actions in the fairy tale there lies a deep-laid philosophical meaning based on the esoteric interpretation of the image-symbol of the ring set with a semi-precious stone, whose name in the title of the fairy tale represents the author's special sign highlighting the significance of precisely this object. The metaphysical meaning of any precious or semi-precious stones resides in its symbolism, whose explication refers to hidden knowledge as well as material wealth and earthly love. It is in this duplex symbolical form (temporal power / riches opposed to mystical love / esoteric knowledge) that the writer introduces the opal ring as the fateful trigger of the spiritual evolution of the hero; the narrative shows the transformation of tsar Nurredin from the sanguinary cruel imperious warrior-ruler into the true philosopher who undergoes an intense personal evolution within a short human lifespan, experiences a divine love unfamiliar to him earlier and at the same time discovers new secret knowledge about other worlds, but, as a result, temporal power and wealth become of doubtful value for him and, naturally, he loses interest in them. It is this idea that the hero implies in his final monologue when, being philosophically indifferent to the external world, he refuses the condescendingly generous offer coming from Origell to become the governor of a province (in addition to sparing his life): «Vanity is earthly wealth!» [9, p. 592]. The initial nature of Nurredin's personality was similar to rough stone without spiritual polishing; but coming into contact with the radiation of divine light, the hero's soul is transfigured (the image-symbol of the semi-precious stone with *perfect shape* and the maiden with *unhuman beauty*). In reality the hero possessed *the ring with opal*, which is an equivalent of realization of all hidden and unexpressed wishes of his soul and heart, embodiment of his spiritual potency. From this point of view, the military defeat of Nurredin is no longer a collapse as, in fact, the hero gains the new status of philosophizing wanderer around other worlds.

Examined separately, the story of the development of the hero's relationship with the maiden-Music of the Sun takes on the value of passing an initiation

procedure, in which there are all the necessary stages: a maiden under the veil and without it (like the goddess Isis under the veil as a bearer of mystical knowledge hidden to the neophyte and without the veil after the initiation of the neophyte into the same knowledge); a kiss as the image-symbol of mystical kiss, signifying the reciprocal relationship with the object of divine adoration and worship (it is not accidental that the maiden disappears just after the kiss: the mystical contact has taken place, which is why further liaison with the help of the opal ring was not needed anymore). Nurredin completes the most significant and important phase in his life, the finish of which he laconically formulates in the following way: «the best thing existing in the world is dream», and all the rest is «vanity» [9, p. 592], therefore, it is possible to presume that at a later time the hero will find a new dream and a new object of adoration. By means of the personage Nurredin the exceptional chance is introduced to follow the possible evolution of Dadon following his survival of the unpredictable attack of the cockerel (which took place just after the hero had passed *his* own initiation in the presence of the Shamahanskaya tsarina): it is not unlikely that he also might become a sage / philosopher / ascetic similar to his former friend-astrologer; consequently, it should be stated that Nurredin successfully passes the initiation, even though he was not aware of it initially, but Dadon fails the most important examination in his life.

Thus, a conclusion can be drawn about 1) the coincidence of the general narrative background in the two literary works (the troubled coexistence of the tsardoms in permanent military opposition); 2) the nonrandomness of appearance of the sage / Dervish at a vitally important moment in the survival of the states; 3) the identity of the three functions of the Dervish from the analyzed fairy tale and Pushkin's sage; 4) the pattern of bringing into action the magical artefact (cockerel / ring) as a form of magical aid; 5) the identical role of beautiful virgins ruining the destinies of the protagonists and destroying their kingdoms, which leads to a dismal end in both literary works; 6) the presence of mystery / initiation. As a whole, the fairy tale «The Opal» by I. V. Kireyevsky is identical in its basic parameters to «Tale of the Golden Cockerel» by A. S. Pushkin.

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Iraida Kudriashova,

*Plekhanov Russian University of Economics,
Assistant Professor of Foreign Languages Chair # 2,*

Tatiana Sedova,

*Plekhanov Russian University of Economics,
Candidate of Philological Sciences,
Associate Professor of Foreign Languages Chair # 2*

***Once again about a language picture of the world
(sniper - shooter - voroshilovskiy strelok)***

Ираида Кудряшова,

*Российский экономический университет имени Г.В. Плеханова,
старший преподаватель кафедры иностранных языков № 2,*

Татьяна Седова,

*Российский экономический университет имени Г.В. Плеханова,
к. филол. н., доцент кафедры иностранных языков № 2*

***Еще раз об языковой картине мира
(снайпер - стрелок - ворошиловский стрелок)***

Идея наличия у народов, населяющих нашу планету, разной языковой картины мира не нова. Еще Вильгельм фон Гумбольдт заметил, что «каждый язык описывает вокруг народа, которому он принадлежит, круг, из пределов которого можно выйти только в том случае, если вступаешь в другой круг» [1]. Но, к сожалению, в период ученичества мы забываем об этом и все стараемся унифицировать. Поэтому при переводе испанской фразы *Dio en el blanco* русскоязычные студенты переводят ее так: *Он попал в молоко*.

В.В. Иванов и канадский психолог У. Шаффрир начали изучать общекультурные и психологические индивидуальные ассоциации цветов в начале девяностых годов прошлого века. «Набор цветов, фиксируемых в языковых названиях, установлен для всех известных науке языков. Он стандартен: если

есть иерархически менее значимый цвет (напр., зеленый), то в языке заведомо есть более значимые цвета (желтый) ... Три основных цвета (черный — белый — красный) есть во всех языках мира; различия этих цветов используются во всех мифологиях и других символических системах. В этой области языковые универсалии устанавливаются вполне отчетливо. Но обнаруживаются и разительные отличия некоторых культур ... и творческих индивидуальностей» [2].

Следовательно, сочтя, что *el blanco* - это имя существительное, имеющее значение «белый цвет», а иногда и вовсе приняв его за прилагательное «белый», поспешно сообщается о том, что *Он попал во что-то белое, а именно в молоко*. «В молоко», то есть в белые круги, расходящиеся вокруг черной мишени. «Стрелять в молоко» означает вообще не попасть в цель. А вот существительное «цель» как раз и будет в испанском языке - *el blanco*. В испанском языке *apuntar al blanco* означает «целиться», а *dar en el blanco* — «попасть в цель». «Картины мира, рисуемые разными языками, в чем-то между собой похожи, в чем-то различны», - пишет Л.П. Прокофьева [3].

Лексикографическое исследование, проведенное на основе «Русского ассоциативного словаря», показало, что самая распространенная ассоциация на прилагательное «белый» - это существительное «снег» [4]. Но лексема «белый» ассоциируется с лексемой «молоко» только у одного респондента. Но зато в русском языке при меткости попадания работают словосочетания «попасть в яблочко» и «попасть в десяточку». Легенда связывает фразеологизм «попасть в яблочко» с событиями, произошедшими в Швейцарии с тогдашним австрийским наместником Теслером и крестьянином Вильгельмом Теллем, вынужденным стрелять в яблоко на голове своего сына. Согласно легенде, такие события произошли в Германии, но фразеологизм укоренился в русском языке на уровне обыденного сознания русского человека, потеряв свои истоки. Подобное взаимопроникновение культур нашло отражение в языковой картине русского народа. Но у русских в языке существует еще фразеологизм «попасть в десятку»/«попасть в десяточку». «Десятка» у военных и спортсменов - центр мишени. А значение фразеологизма - «делать что-то очень точно, угадывать что-то, подбирать точные слова и т.д.». В цель может попасть меткий стрелок или снайпер. Словосочетание «меткий стрелок» и лексема «снайпер» синонимичны. Подтвердившаяся гипотеза компонентного анализа сводится к тому, что семантема «снайпер» в отличии от семантемы «стрелок» имеет сему

«обученность, выучка, подготовленность». Лексикографический и статистический анализы, проведенные по «Национальному корпусу русского языка», дали возможность прийти к следующему выводу [5]. Лексема «снайпер» употребляется 356 раз в 180 документах, а словосочетание «меткий стрелок» задействовано в 109028 источниках. Разнится частота узуса также английских лексем *sharpshooter* и *sniper*. Были исследованы British National Corpus и Corpus of Contemporary American English [6, 7]. В результате сравнения были выявлены следующие показатели. В British National Corpus лексема *sniper* употребляется 123 раза, а *sharpshooter* - только 9 раз. Частотность узуса лексемы *sniper* больше, чем лексемы *sharpshooter* в 13,5 раз. В Corpus of Contemporary American English существительное *sniper* фигурирует 246 раз, а существительное *sharpshooter* - только 9. В 27 раз частотнее употребление лексемы *sniper* у американцев. Считаем, что на основании данных приведенного статистического анализа можно сделать вывод и о языковых предпочтениях англичан и американцев, а также прояснить складывающуюся языковую картину мира у двух говорящих на одном языке народов.

При рассмотрении данных Corpus del Español [8] было выявлено всего лишь 8 случаев использования лексемы *francotirador*. «Словарь синонимов испанского языка SIGNUM» [9] дает синонимический ряд к лексеме *francotirador*, состоящий всего из трех лексических единиц: *guerrillero*, *emboscado*, *faccioso*.

Причем среди примеров, данных в Corpus del Español, встречаем такой: ... *que es la novella esta de Pedro Juan Soto, que se llama El Francotirador*. В русском языке также имеются случаи, когда лексема «снайпер» используется как имя собственное для обозначения фильмов, спортивных клубов, журналов и т.д. Например: «Сна́йпер» — историческая драма Клинта Иствуда, снятая по сценарию Джейсона Холла на основе мемуаров снайпера 3-й команды SEAL из Техаса Криса Кайла.

Но в русском языке есть еще понятие «ворошиловский стрелок». Речь идет о массовом движении «Стреляй по-ворошиловски» и об утверждении в 1932 году звания «Ворошиловский стрелок» с присвоением значка. Старт этому движению был дан на зачетных командных стрельбах 1932 года, когда из оружия, из которого стрелок-командир не смог выбить ни одного очка, с зачетной рубежной позиции семью выстрелами Клим Ворошилов, в то время Народный комиссар по военным и морским делам, председатель Реввоен-

совета СССР, сумел выбить 59 очков. Количество награжденных этим почетным значком за стрелковое мастерство по некоторым данным достигает девяти миллионов человек. Безусловно, люди, носившие нагрудный знак «Ворошиловский стрелок», были меткими стрелками, то есть снайперами. Русский язык принял и ассимилировал полностью иностранную лексику «снайпер».

Существует две версии происхождения и укоренения этого слова в русском языке. Первая версия заключается в следующем. Как мы понимаем, слово «снайпер» имеет англосаксонские корни. В английском языке существует слово *snipe*, обозначающее «бекаса». Бекас (*лат. Gallinago gallinago*) - это птица с хаотичной траекторией и высокой скоростью полета, что делает ее почти недоступной для пули охотника. Охота на бекасов англичане стали называть словом *sniping*. Отсюда и истоки слова «снайпер». Но есть и еще одна версия, также связанная с охотой на птиц. Другая птица по-английски называется *great snipe* (*лат. Gallinago media*), то есть «дупель». Дупель, как видно из названия, тоже принадлежит к семейству бекасовых. В семидесятых годах восемнадцатого века британские солдаты в Индии начали называть стрелка, способного в воздухе подстрелить дупеля, словом «снайпер».

Какой бы ни была корректная версия этимологии слова, оно вошло в русский язык. Межкультурные связи в этой связи явно просматриваются, что позволяет носителям разных культур и языков обогащать друг друга.

Но испанский язык не взял заимствование из английского языка, как это произошло с русским языком, а взял его из французского. В имени существительном *francotirador* транспарентны два корня: *franco* и *tirador*. Существительное *tirador* - *стрелок*. Имя прилагательное *franco* употребляется в трех значениях. Во-первых, это «свободный, открытый, то есть беспрепятственный для входа, доступа и т.д.» Во-вторых, - «откровенный, искренний». И в третьих, - «явный, очевидный».

Если концепт «снайпера» формируют «обученный стрелок» и «стрелок, работающий из укрытия», то первое значение «открытый» вряд ли подходит для корня *franco*. Второе значение «искренний, откровенный» вряд ли совместимо с понятием «стрелок». А вот третье значение - «явный, очевидный» может быть употреблено с существительным «стрелок», если его значение расширить до «явный, то есть умелый, квалифицированный, мастеровитый и т.д.».

Но такая языковая гипотеза не подтвердилась. Испанский этимологический словарь разъясняет происхождение существительного *francotirador* по-другому. Источником считается французское слово *franc-tireur*. Корень существительного *tireur* восходит к глаголу *terer*, означающему «стрелять». А вот корень *franc* (по-испански *franco*) - прилагательное со значением «свободный». Во время событий Французской революции такие стрелки формировали легкие мобильные отряды в противовес регулярным армейским подразделениям. А в годы Второй мировой войны слово опять «встало под ружье» и стало употребляться для обозначения стрелков французского сопротивления. Поэтому в испанской картине мира изначально *francotirador* - это солдат вне регулярной армии, стреляющий по врагу из засады, укрытия. Но существительное *francotirador* имеет и переносное значение. Так говорят о человеке, независимо, открыто высказывающем свое мнение. Часто его мнение не совпадает с общепринятым мнением, и он идет против мейнстрима. Например: *Los intelectuales francotiradores son autónomos, no pertenecen a partidos de izquierda / Интеллектуальные снайперы - независимы.*

Переносное значение использования существительного «снайпер» наблюдаем и в русском языке. В первом примере существительное, подобно тому, что происходит в испанском языке в политическом дискурсе, переключалось в спортивный дискурс: *Статистика призывает с Венгером согласиться: лучший снайпер премьер-лиги прошлого сезона вышел в лидеры в нынешнем.* А во втором примере используется в ироничном ключе: *Ну, стреляй, снайпер! И сам пошел поправлять обезьянку, потому что она как-то покосилась.*

Примеров можно привести много, но вывод из них следует такой: при глобализации мира происходит и унификация некоторых языковых процессов, а точнее, параллелизм протекания этих процессов в разных языках. Культурная интеграция, а также на современном этапе динамичное влияние политических, экономических, социальных, экологических и других факторов на языки позволяют, хотя и не выйти за пределы круга, очерченного конкретным языком, но наблюдать, как малая часть этого круга начинает накладываться на круг/и другого/их языка/ов.

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Gayrabekov Umar Tashalievich,

HPO "Chechen State University",

The Academy of Sciences of the Chechen Republic,

KNII RAS, Associate Professor, Ph.D., Grozny, Russia

***On the problem of optimizing the environment
of the Chechen Republic under the impact
of oil production***

Abstract: Based on the analysis of evidence (level of groundwater, waterlogged and flooded by the territory of the flood waters, the presence and thickness of the low permeable sediments hides section, the reaction of the soil environment, and other factors) Zoning of the Chechen Republic under the terms of the placement and the elimination of storage of drilling waste (tailings pond).

Schematic map drawn up in accordance with which the three areas of accommodation offered tailings pond with respect to the ground surface. Depending on the reaction of the soil environment at a map the consideration allocated areas with alkaline, neutral and acidic soils, as well as areas with predominantly clay soils. Taking into account, in any zone, the area and the site fall tailings pond, proposed measures for their elimination and minimization of anthropogenic impact on the natural and anthropogenic.

Keywords: natural environment, the impact on the environment, oil facilities, environmental violations.

Гайрабеков Умар Ташадиевич,

ФГБОУ ВПО "Чеченский государственный университет",

Академия наук Чеченской Республики, КНИИ РАН,

доцент, кандидат биологических наук, Грозный, Россия

***К проблеме оптимизации природной среды Чеченской
Республики в условиях воздействия
нефтедобывающего производства***

Аннотация: На основании анализа фактических данных (уровень залегания грунтовых вод, заболоченность и затопляемость территории паводковыми водами, наличие и толщина слабопроницаемых отложений в скрываемом разрезе, реакция почвенной среды и других факторов) проведено районирование территории Чеченской Республики по условиям размещения и ликвидации накопителей отходов бурения (шламонакопителей).

Составлена картосхема, в соответствии с которой предлагаются три зоны размещения шламонакопителей по отношению к поверхности земли. В зависимости от реакции почвенной среды на рассматриваемой картосхеме выделены районы с щелочными, нейтральными и кислыми грунтами, а также участки с преобладающими глинистыми грунтами. С учётом, в какую зону, район и участок попадают шламонакопителей, предложены мероприятия по их ликвидации и минимизации техногенного воздействия на природно-антропогенную.

Ключевые слова: природная среда, воздействие на окружающую среду, нефтепромысловые объекты, экологические нарушения.

Введение. Чеченская Республика является одним из старейших нефтедобывающих районов в стране и мире. Добыча нефти на протяжении почти двух веков привела к образованию обширного и внутренне гетерогенного ареала воздействия нефтяного хозяйства на окружающие природные комплексы республики [1]. Интенсивное развитие нефтедобывающего производства Чеченской Республики, создание и эксплуатация многочисленных нефтепромысловых объектов с низким уровнем экологичности технологических процессов, применяемых при добыче нефти, привели к масштабному воздействию на окружающую среду – трансформации природных ландшафтных комплексов в природно-антропогенные и антропогенные [2].

Добыча нефти, как правило, сопровождается аварийными и техногенными утечками, разливом нефти на поверхность земли. Загрязнение почв нефтью вызывает нарушения динамического равновесия в экосистеме вследствие изменения структуры почвенного покрова, геохимических свойств почв, а также токсического действия на живые организмы [3]. Более того, добыча нефти связана с нарушением ландшафтов строительной и буровой техникой, извлечением отходов бурения, являющихся источниками химического загрязнения природной среды [4]. Поэтому рассматриваемые вопросы актуальны для

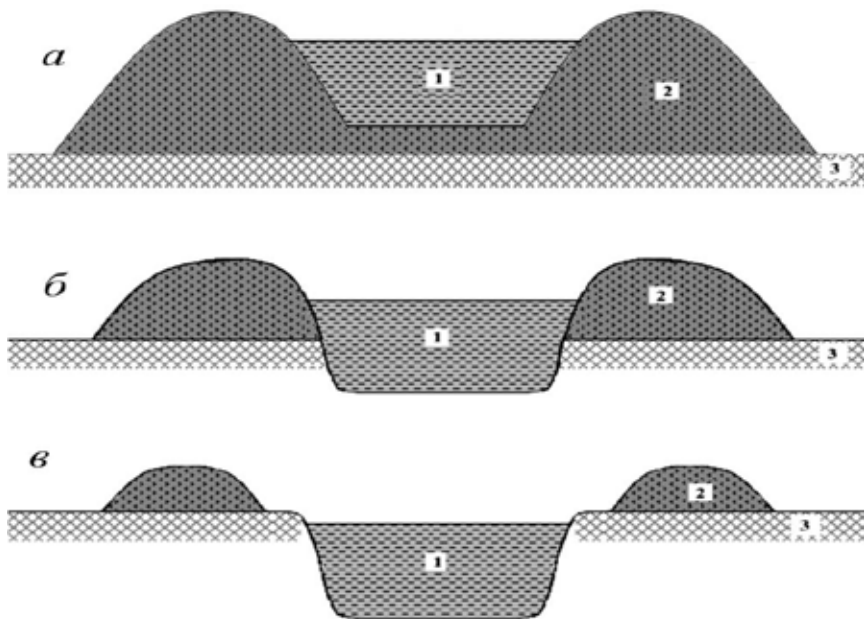
Чеченской Республики – испытывающей на себе в течении длительного периода активное воздействие нефтедобывающего комплекса.

Материалы и методы. В основу работы легли результаты исследований проводимых автором по оценке воздействия объектов нефтяного комплекса на природно-антропогенную среду Чеченской Республики. «СевКавНИПИнефть», ОАО «Грознефтегаз», ФГУП «Чеченнефтехимпром», Министерства природных ресурсов и охраны окружающей среды Чеченской Республики, Управления по недропользованию по Чеченской Республике, картографические материалы и литературные источники по данной тематике

Результаты и обсуждения. Как показали полевые исследования и последующий анализ собранных данных, для выявления факторов и всевозможных последствий техногенной трансформации природно-антропогенной среды необходимо провести районирование по нескольким параметрам, с разных точек зрения выявляющих пространственно-временные диспропорции техногенной трансформации. Ниже предложен подход к районированию территории Чеченской Республики, с целью практического применения.

В зависимости от природных факторов, правильная увязка условий нахождения загрязняющих веществ по отношению к поверхности земли и методы ликвидации шламонакопителей значительно снижают экологические последствия, вызываемые отходами бурения. При сооружении шламонакопителей, исходя из геоморфологических, литологических и гидрогеологических условий площадок, применяются три схемы размещения (рис. 1).

На основании анализа фактических данных (уровень залегания грунтовых вод, заболоченность и затопляемость территории паводковыми водами, наличие и толщина слабопроницаемых отложений в скрываемом разрезе, реакция почвенной среды и других факторов) проведено районирование территории Чеченской Республики по условиям размещения и ликвидации шламонакопителей в зависимости от условий природной среды (рис. 2).



а – шламонакопитель, сооруженный в насыпном обваловании

б – шламонакопитель, сооруженный в насыпи – в выемке

в – шламонакопитель, сооруженный в выемке



– отходы
бурения



– насыпной
грунт



– поверхность
земли

Рис. 1. Схемы размещения шламонакопителей по отношению к поверхности земли

В соответствии с этой картосхемой предлагаются три зоны размещения шламонакопителей по отношению к поверхности земли.

I зона. Затопливаемые территории пойм рек, болотистые и заболоченные участки, а также площадки с неглубоким залеганием грунтовых вод (не более 1,5 м) с учётом сезонных колебаний. Строительство шламонакопителей в этой зоне рекомендуется в насыпном исполнении (рис. 1.а), с обязательным устройством противодиффузионного экрана.

II зона. Территории с уровнем грунтовых вод от 1,5 до 3,0 м. Строительство шламонакопителей в этой зоне рекомендуется в насыпи – в выемке (рис. 1.б). При этом отметка для амбара должна быть не менее чем на 1,0 м выше уровня грунтовых вод, с учётом сезонных колебаний.

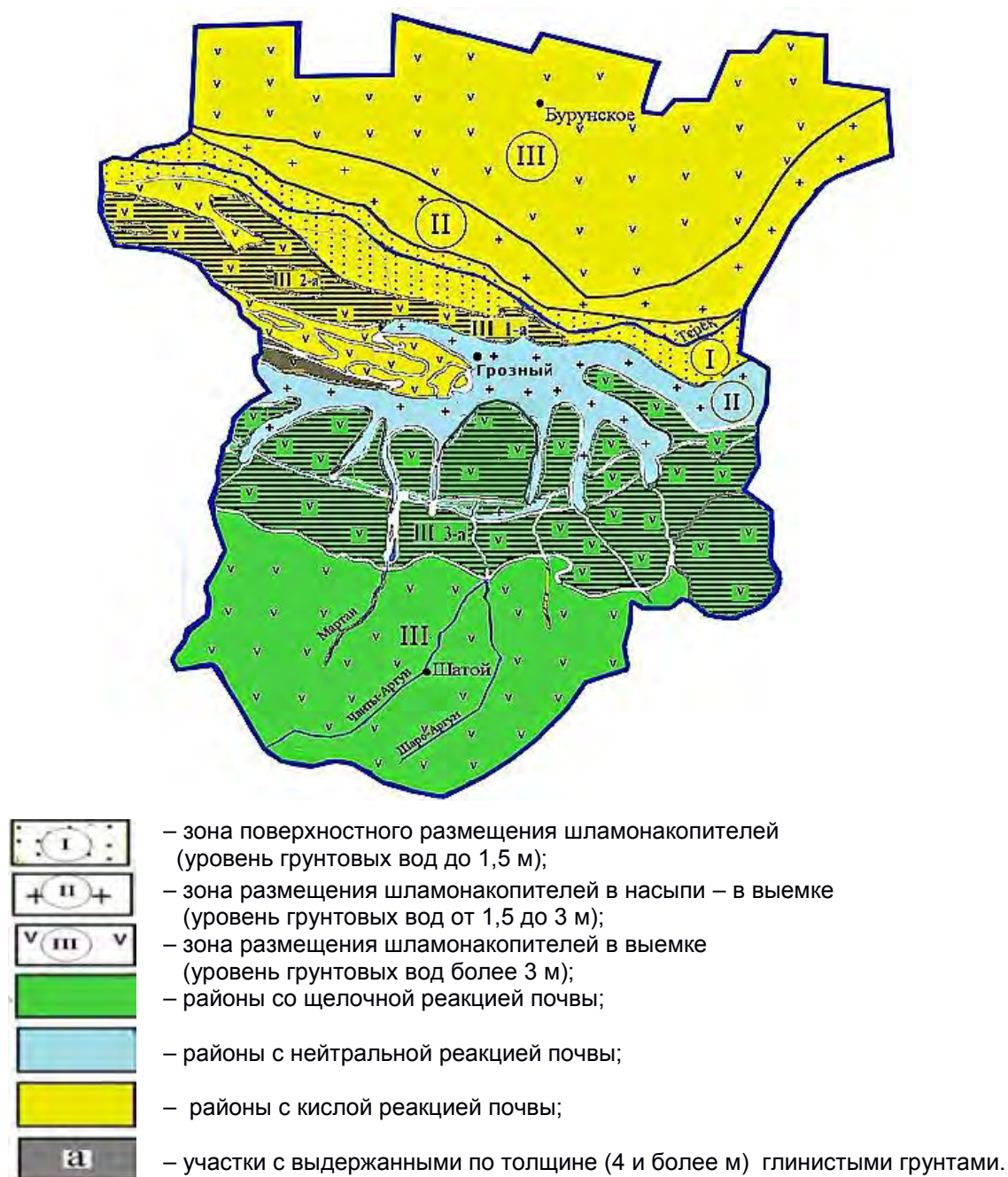


Рис. 2. Картограмма районирования Чеченской Республики по условиям размещения и способам ликвидации шламонакопителей

III зона. В этой зоне грунтовые воды отсутствуют или залегают на глубинах более 3,0 м. Шламонакопители здесь рекомендуется размещать в выемке (рис. 1.б).

В зависимости от реакции почвенной среды на рассматриваемой картограмме выделены районы с щелочными, нейтральными и кислыми грунтами, а также участки с преобладающими глинистыми грунтами.

С учётом, в какую зону, район и участок попадают шламонакопители, предлагаются мероприятия по их ликвидации.

При ликвидации амбаров в I и II зонах применимы следующие способы:

- эвакуация отходов бурения для захоронения в места, заранее предусмотренные в рабочем проекте строительства скважины;
- утилизация или сброс на рельеф очищенной жидкой фазы с последующим обезвреживанием и захоронением на месте загущенной фазы отходов бурения. При этом необходимо захоронить 0,3 м ниже плодородного слоя, но не менее 0,8 м от поверхности земли.

Ликвидация шламонакопителей в этих зонах путём засыпки грунтом и другими механическими способами без очистки, нейтрализации и отвердевания отходов бурения неприемлемо, так как при этом помимо загрязнения окружающей среды, в процессе ликвидации, будет наблюдаться и вторичное загрязнение.

В III зоне, являющейся наиболее обширной, исходя из реакции почв, в качестве одного из вариантов обезвреживания амбаров предлагается утилизация жидкой составляющей отходов бурения путём использования их для ирригации или разбрызгивания на пахотные земли. Оставшаяся загущенная часть отходов бурения засыпается грунтом.

В кислых почвах утилизацию жидкой фазы отходов бурения необходимо проводить путём очистки их от нефти и нефтепродуктов. Такая очистка достигается при использовании фильтров из древесной стружки, опилок, стекловаты, и ряда других материалов при соответствующей плотности их укладки, содержание нефти и нефтепродуктов при этом снижается на 95-97%.

На территории с щелочной реакцией почв утилизация жидкой фазы отходов бурения необходимо проводить после физико-химической очистки методом реагентной коагуляции. При этом pH очищаемой среды понижается до кислой (pH=5,0-4,4). В утилизируемую среду можно вводить CaCl_2 , H_2SO_4 , FeSO_4 и др., что значительно повысит благоприятное действие отходов бурения на почву.

В районе, представленном почвами с нейтральной реакцией, обезвреживание жидкой фазы из амбаров не желательно, так как в этом случае могут нарушиться регулируемые в них определёнными видами бактерий процессы по улучшению состоянию почв, в сторону их ухудшения. В этом районе применим способ ликвидации амбаров путём засыпки грунтом.

На участках, выделенных в III зоне (III-1-а, III-2-а, III-3-а) предлагается ликвидация амбаров путём «выдавливания» текучей части отходов бурения в узкие траншеи и засыпки грунтом, а оставшаяся в амбаре малоподвижная часть после подсыхания также засыпается грунтом.

Выводы:

1. Наблюдаемая в настоящее время экологическая ситуация в Чеченской Республике является результатом:

- длительного функционирования нефтяного комплекса с низким уровнем экологичности технологических процессов, применяемых при добыче нефти;

- несоблюдения природоохранного законодательства и недостаточности теоретико-методологического обоснования мероприятий по оптимизации природной среды, в связи с бурением скважин на нефть.

2. Сложившаяся в Чеченской Республике экологическая ситуация в связи с функционированием нефтедобывающего производства требует всестороннего изучения и осуществления мероприятий по оптимизации природной среды.

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Afandiyev Vuset Amir,

Baku State University,

Professor, Doctor of Geographical Sciences,

the Faculty of Geographical Science,

Gasumova Firangiz Eyyub,

Baku State University, Geography Ph.D.,

Teacher, the Faculty of Geographical Science

Scientific basics and problems of urbanization of Azerbaijan

The term of urbanization made its appearance from the study of problems of ancient and modern towns in the historical perspective.

In modern researches the urbanization process must be studied first of all in respect of “urbanized environment”, possessing diversified essence, functional features and being in close relationship with a town. “Urbanized environment” is considered to be a special environment having close relationships with human life, the activity and existence of industrial enterprises and mutual ties nature - society.

In modern urbanization studies a special attention is paid to the reasons and system creating the town urbanization. One can come from it to a conclusion, that the history of housing is an objective process stemmed out of urban life mode, productive relations of population, industrial and transport activity. In a wider sense the urban relationships developing in a peculiar social and economic way constitute the substance of urbanization.

Urbanization process takes part in the process of transition of society to the social environment, the area of dense population in this system, the new public development having modern substance. Here the urbanization participates in population housing at the historic period, and fulfilling of creative function in transition of urban environment to the modern development mode that is subject of production concentration.

The last stage of the progressive development process conduct the activity of the society for recycling capacity and reciprocal activity in the different area conditions within potential move of environment. The peculiar characteristics of

urbanization as a function doesn't keep the past development activity typical for civilized countries, but changes periodically.

In the course of development and improvement of production relations and scientific-technical progress as integrative start action, as a result of the change of its parameter and scale the problems appropriate to this process take place and it change in form and substance. In the conditions of modern production relations, forms of property, information and development (reciprocal movement) the urbanization acting within this system maintaining its peculiar relationships enlarges and become more complicated in accordance with progressive concentration and formation of the territory.

Territorial aspect of urbanization is expressed not with division of a region and zones influenced by this process (not only zones, area and districts) and urbanized territories and distinction of urban settlements, but intensity of housing. Urbanization in urban environment is manifestation of dense population. In developed countries the urbanized urban environment creates suburbanization at the centers of dense placement of industrial, transport, commercial, and cultural spheres.

Depending of the situation, the urbanization changes its movement position within certain environment, gets its shape, take part in improvement of social-cultural environment. The urbanization that receives in this connection a new substance changes its local-space, quantitative and substantive activity. In this sense the urbanization stands in the position of not only the indicator of urban environment and result of activity process but also the mobile distinguishing changer, integral part of social system emerging in urban environment, the product of economic-social development within time and space.

Development ground takes place defining general bias of the peculiar to dynamic activity of social-economic and scientific-technical progress as well as urbanization process. Thus the study of structure-creating components of urbanization emerging in urban environment, and finding out of substances which would allow the scientific approach to the substantive reasons of this process further is stipulated by the major goal of our research.

Cities are system of activity inside a local territory with enormous progressive potential and possessing to the big force of attraction. Regulation of cities and process of urbanization accompanying them is possible under condition of the

account and judgment of objective rules, and also scientific-practical and economically-social aspects of their development.

The urbanization process takes part in the process of transition of society to the social environment, the area of dense population in this system, the new' public development having modern substance. Here the urbanization participates in population housing at the historic period, and fulfilling of creative function in transition of urban environment to the modern development mode that is subject of production concentration.

Urbanization is formed in the stages of cultural, social-economic development as a transitional, peculiar and necessary element as well as an independent process. In this quality the urbanization is a moving process bearing a special “importance” in civilization processes and formation of urban environment and acts in tight coordination with civilization.

It is commonplace that a special development ground takes place defining general bias of the peculiar to dynamic activity of social-economic and scientific-technical progress as well as urbanization process. Thus the study of structure-creating components of urbanization emerging in urban environment, and finding out of substances which would allow the scientific approach to the substantive reasons of this process further is stipulated by the major goal of our research.

It worth to note that in this respect the civilization emerging from the substance of fundamental changes in the society renovates itself in the course of historical process periodically, experiences qualitative and quantitative changes depending on the functions of the city and stands as an outstanding evolution process in economic, cultural and social domains.

Discoursing upon the civilization that takes place in urban environment we imply a notion creating new social-economic society on the basis of labor division. Furthermore, the deepening of economy, especially ever-moving industrial production processes and migration of population is implied.

From this viewpoint the civilization which is the center of urbanization and industrial concentration appears as industrial division, labor division and territorial division of people.

In its private uniformity, reciprocal action and interdependence they create a favorable ground for emergence of new events - “social effects”, functional substance, civilization of towns and related with this labor activity. In its turn the

intensity of urbanization processes in large and big cities as well as suburban areas is increased, causes the qualitative and quantitative changes in social evolution. From this viewpoint the development of cities appears to be the historical process introducing novelty into their cultural evolution development.

Such a historical situation typical for civilization takes place within the division of public labor, production, individual property differentiated production, functional activity of the spheres of social and cultural service.

The public and economic relations based on the division principles mentioned earlier regulate the right of independent development in the society, intellectual creativity of people, cultural and scientific-technical progress of people in accordance with demands of our times, reciprocal relationships of positive and negative events occurring within the frames of time and space and defines the progressive routes at the given spheres and function of cities. The urbanization upon its level of activity and development stands as a public category distinctive from other settlements by the concentration of economic, social-demographic systems and population housing within urban-territorial area. In these conditions, the cities having created as a special social, economic organism and in the stages of their development within some territory a dense infrastructure form the "cradle" of urbanized civilization.

The changing-and-improving activity of modern urbanization is evaluated as a result of development status, the position held in territorial-production system, moving activity and concentration of production. On the one hand the urbanization appears as a development of creative forces of the society and expression of correlation of concentrating production areas with forming intellectual power. On the other hand, it is a public-social process providing the implementation of relations of progressive, creative factors in the development of the society, people and remote regions.

Economic and social progress, technical progress and development of science, enlightenment and culture resulted from the expansion of urbanization and population cause the occurrence of appropriate professions, specialties, habits and traditions. Here the urbanization participates in population housing at the historic period, and fulfilling of creative function in transition of urban environment to the modern development mode that is subject of production concentration. There are tens of cities the number of population of which exceeds 10 million. Now nobody is surprised that the number of urban and rural population will equal shortly. In its turn

that will create a number of problems that can be caused by hyper-urbanization in economic and social-demographic spheres. Urbanization process takes part in the process of transition of society to the social environment, the area of dense population in this system, the new public development having modern substance [5].

The appropriateness of urbanization is defined finally by the founding-etymological feature of the development and from this viewpoint the progressive factors introducing innovations don't take place everywhere but appear in the favorable urban environment, industrial centers.

The last stage of the progressive development process conduct the activity of the society for recycling capacity and reciprocal activity in the different area conditions within potential move of environment. The peculiar characteristics of urbanization as a function doesn't keep the past development activity typical for civilized countries, but changes periodically.

In the course of development and improvement of production relations and scientific-technical progress as integrative start action, as a result of the change of its parameter and scale the problems appropriate to this process take place and it change in form and substance. In the conditions of modern production relations, forms of property, information and development (reciprocal movement) the urbanization acting within this system maintaining its peculiar relationships enlarges and become more complicated in accordance with progressive concentration and formation of the territory.

New tendencies of economic and social progress, technical progress and development of science, enlightenment and culture resulted from the expansion of urbanization and population cause the occurrence of appropriate professions, specialties, habits and traditions. Meantime, peculiarities, types and intensity of town urbanization depending on territorial migration and population level creates now diversification, complexity, inequity, multi-vectored economic-social relationships in production and service industries in town development and expands the progressive, new integrative activity.

Integration and planning, town studies from the urbanization viewpoint is a subject of inquiry by different sciences - economy, economic-social geography as well as urban planners. Within the circle of their attraction power and surrounded by unitary areas the towns cause the occurrence of tight reciprocal relationships,

integration processes and promotes the vanish of insulation, isolation typical for the past.

Towns and urbanization that is their satellite is determined by mutual relations of concentration of production and non-production branches, dynamic activity, changes within frameworks of time and space, and the use of natural, economic-geographic, economic and demographic resources. The natural, economic, technical, labor potential, geographical location form the relations of mutual influence in uniform system created of the elements created by such factors like towns and urbanization. The common and separate activities of economic, natural and population potentials, their use, development of production create possibility and favorable conditions for population housing in towns and perspective bias for the utmost stage of this process - the urbanization.

The town and housing system of Azerbaijan Republic is structured of 1 capital, 3 large, 24 medium, 44 small towns and 261 settlements. From the viewpoint of economic-geographic position and urbanization development the typological classification of towns presents a special form of different groups separation of them upon their importance. A considerable need is felt nowadays for type differentiation of Azerbaijani towns upon their functional bias and economic-geographic positions [6].

Firstly, because economic-geographic position of towns, production development, sphere of service for population, demographic indicators, classification upon urbanization and concentration are of great importance for use of natural, economic, scientific-technical potential and labor reserves.

Secondly, in the modern conditions of economic, scientific and technical, civil development the problem of conduct of typological classification of town of Azerbaijan Republic, possessing intellectual power and scientific potential must be resolved as an important problem. In the result of scientific research works in the field of town and urbanism we come to conclusion that the classification of towns in Azerbaijan might be conducted on the following factors:

- a. concentration of branches (productive and non-productive) of national economy, population employment and structure;
- b. demographic (number, density, age structure of population);
- c. dimensions and district-forming importance of towns;
- d. position in common-territorial division and economic relations;
- e. ethnic and national features;

f. economic and geographic position.

For realization of aforementioned classification one must consider the towns along with its industrial, transport, urbanization and concentration objectives as a territory where are located different organizational, administrative, commercial-distributing, cultural and social, public health and social security objects.

The urban settlements of Azerbaijan develop in mutual relation with hierarchical system as its towns do. We consider it purposeful to form the system-creating factors of Azerbaijan towns in functional structure and within the gravity zone on the level of urbanization in the following way:

1. the towns located in a purely industrial production zone, having the intensive concentration and urbanization level, developing the rural industry branches in surrounding areas (Baki, Sumgayit);

2. the towns representing the development base of industry, forming fuel and power, water power, metallurgy welfare, having the food and light industry enterprises working on the production of agriculture (Ganja, Shirvan, Mingachevir, Nakhchivan);

3. the towns with poor level of urbanization, specializing on the refinement of the agricultural products and the essential part of population of which is employed in the rural industry sphere (a number of medium towns are relevant to this category);

4. the small towns, processing local agricultural products, having the enterprises of food and light industry and low-density population, the major part of population of which is employed in non-productive spheres, administration and governance services (district administration centers, etc.);

5. the urban settlements having branches of local industry, nonmanufacturing business and low-density population [7].

In the result of the research conducted we consider it reasonable to distinct the following groups of Azerbaijan towns diversified upon the level of population:

1. Big Baki having a more than 2,8 million population - capital city;

2. Ganja and Sumgait cities, the population of which is up to 300 thousands;

3. Medium towns (24) the population of which varies from 20 to 100 thousands;

4. Small towns (44) the population ranges up to 20 thousand;

5. Urban settlements (261) the population of which varies from 1 to 8 thousands [7].

We think that the research of urbanization must be conducted respecting some hierarchical sequence and in relation with formation of items of taxonomic units

in the housing bias, implementing necessarily the system method of study; the housing must be treated like a spatial skeleton in the territorial and industrial system of economic, social and service spheres.

As a matter of fact, the useless lands surrounding common and private objects of living of all towns (Baki, Sumgayit, Ganja, Nakhchivan, Shirvan, Mingachevir, Davachi, etc.) occupy large territories.

In the terms of increase of urban population's demand for agricultural products the resoil of useless suburban lands, not depending of their form of property, land ownership and investment must be solved with state support and within the frames of its economic policy.

Urbanized, concentrated Baki-Sumgayit agglomeration, Shirvan, Mingachevir, Ganja, Siyazan, as well as a number of urban settlements located in Absheron develop in the conditions of reduced natural resources and polluted environment, that violates the ecological balance and restricts the normal economic, social and ecological conditions of urban settlements [7].

The residents of towns the air, soil and growth of which suffered from antropogenic and man-caused influences feel sharp need in natural landscapes, recreation and resort zones. In this respect the expansion of suburban parks and restructuring of recreation and resort zones located around such large cities like Baki, Sumgayit, Ganja, Shirvan, Mingachevir must be considered as a necessary condition.

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Batueva Evelina B.,

*East Siberian State Institute of Culture,
Assistant Professor, Candidate of Pedagogical Sciences,*

Manzhueva Oksana M.,

*East Siberian State Institute of Culture,
Assistant Professor, Candidate of Philosophical Sciences,*

Mironova Lyudmila V.,

East Siberian State Institute of Culture, Assistant Professor

The Electronic Collection "Memory of Aga"

Батуева Эвелина Батуевна,

*Восточно-Сибирский
государственный институт культуры,
доцент, кандидат педагогических наук,*

Манжуева Оксана Михайловна,

*Восточно-Сибирский
государственный институт культуры,
доцент, кандидат философских наук,*

Миронова Людмила Валериевна,

*Восточно-Сибирский
государственный институт культуры, доцент*

Электронные коллекции «Память Аги»

Сегодня нет такого информационного центра, который не рассматривал бы задачу создания собственных цифровых коллекций с целью формирования единого электронного информационного пространства.

Эта задача продиктована с решением вопросов предоставления электронных коллекций широкому кругу пользователей. Закрепление в Федеральном законе №35-ФЗ от 12.03.2014 основополагающих принципов, регламентирующих порядок использования библиотечных фондов, в том числе в элект-

ронной форме, существенно расширяет возможности подготовки информационных продуктов по предоставлению услуг в новом формате.

Разрабатываемая тематика электронной коллекции «Память Аги» кафедры информационно-коммуникационных технологий имеет социально-общественную значимость сегодня в нашем непростом мире, особенно для наших молодых современников. Неслучайно в школьном образовании стали практиковаться уроки устной истории, среди учителей историков, литературоведов, одним убедительным приемом раскрытия тех или иных событий, исторических переломных моментов в обществе становится биографический метод изучения персоналий.

Локальные разработки типа «Память Аги» могут стать дополнением или частью таких крупномасштабных действующих проектов на самом высоком уровне, как Президентская библиотека им. Б.Н. Ельцина. В фонде данной библиотеки содержится электронная коллекция «Российский народ». В коллекцию включены биографические материалы, представляющий общественно-политический портрет деятельности российской истории и культуры. В настоящее время коллекция содержит свыше трех тысяч единиц данных и будет постоянно дополняться. Или другой грантовый проект, поддержанный Российским гуманитарным научным фондом (РГНФ). Web-энциклопедия «Выдающиеся деятели науки и культуры – представители коренных народов Севера, Сибири и Дальнего Востока России». Данный информационный портал, посвященный азиатской части России, пока включает семь персоналий бурят деятелей культуры и искусств. Потребность в создании информационных ресурсов в виде коллекции по персоналиям очевидна, так как появляются новые источники, архивные материалы, долго находящиеся под запретом до последнего времени.

Основным фактором по формированию серии электронных мультимедийных коллекций является наличие богатейших документальных фондов в традиционной форме, хранящихся в различных учреждениях и в частных коллекциях.

Электронная коллекция «Память Аги» - это разработанная серия мультимедийных справочников о выдающихся деятелях науки, просвещения и культуры выходцев из Аги Забайкальского края. Данные ресурсы уникальны и предназначены для накопления, хранения и использования сведений для

популяризации историко-культурного наследия региона. В справочниках представлены материалы разнообразных форматов - тексты, фотографии, видео, о выдающихся людях – этнических бурят, которые добились масштабных результатов в сфере изучения и составления научных отчетов о странах Центральной Азии и внесли весомый вклад в развитие Русского географического общества в целом истории России.

Основная цель проекта «Память Аги»: формирование структурированных сведений о жизни и научно-творческой деятельности таких исторических личностей, как Б. Барадин, Ц. Жамцарано, Г. Цыбиков. К задачам проекта относятся: выявление и изучение первоисточников о выдающихся исторических деятелях; структурирование персональных данных о выдающихся исторических деятелях; создание и формирование электронных мультимедийных справочников; разработка дизайн интерфейса и обработка иллюстративного материала; подготовка выпуска дисков.

Электронная коллекция «Память Аги» является составной частью научно-исследовательской работы кафедры информационно-коммуникационных технологий факультета наследия и информационных технологий Восточно-Сибирского государственного института культуры.

Структура электронного мультимедийного справочника содержит следующие реквизиты: ФИО деятеля, год и место рождения; Об авторе; Биографические сведения; Основные даты жизни и деятельности; Перечень научных трудов и наград; Публикации о персоналии; Память потомков; Галерея.

Электронная коллекция оформлена в формате компакт-дисков.

Основные функции проекта: - формирование фонда электронных коллекций о выдающихся исторических деятелях; - создание собственных электронных ресурсов с целью интеграции в единое информационное пространство; - использование ресурсов в образовательных целях, проведения научных исследований, а также для широких кругов пользователей.

Основным критерием отбора персоналий для формирования электронных мультимедийных справочников «Память Аги» явились исторические личности, внесшие значительный вклад в развитие истории России и Забайкальского края.

Источниками формирования электронных мультимедийных справочников явились: источниковедческие исследования по историографии жизни и деяте-

льности персоналий; различные издания: словари, справочники; библиографические указатели; каталоги и картотеки научных библиотек Республики Бурятия, БНЦ СО РАН, Агинской Национальной библиотеки им. Ц. Жамцарано; электронные ресурсы; иллюстративные материалы из частных фондов.

Первые выпуски электронной коллекции разрабатывались по инициативе Агинской Национальной библиотеки им. Ц. Жамцарано, Историко-краеведческого музея им. Г. Цыбикова и при поддержке Министерства культуры Забайкальского края. Исполнителем является кафедра информационно-коммуникационных технологий факультета наследия и информационных технологий ФГБОУ ВО ВСГИК. Кафедра информационно-коммуникационных технологий оставляет за собой право - переиздание дисков и распространение, обновление и сопровождение информационного наполнения.

Авторами поставлена цель в данной статье осветить некоторые аспекты формирования электронного справочника «Базар Барадин» на примере источниковедческих материалов.

Барадин Базар Барадиевич (1878-1937 гг.), бурят, известный Российский востоковед видный научный, общественный, государственный литературный деятель, профессор-востоковед, лектор монгольского языка Санкт-Петербургского университета, организатор науки Бурятии, первый нарком просвещения БМАССР, путешественник, награжден золотой медалью Императорского Русского географического общества и премией имени Н.М. Пржевальского по научным результатам путешествия в Тибет, избран действительным членом Российского географического общества. Арестован в Ленинграде в 1937 г. за контрреволюционную деятельность и расстрелян в этом же году, реабилитирован в 1958 году.

В современном мире заметен огромный интерес к биографическому методу, который хорошо применим для изучения личности выдающихся деятелей в истории страны. Понятно, что каждый исследователь рассматривает личность выдающегося деятеля в рамках своих научных интересов, касаясь только некоторых аспектов многогранной деятельности и общественных взглядов Базара Барадина. Трудно не согласиться с мнением Л.Ц. Алексеевой, что о жизни и деятельности Б. Барадина написано немало, вместе с тем не всегда эти материалы отличаются системным анализом научного исследования [2].

Среди всех работ, посвященных Б. Барадину, заметно выделяется монография Л.Ц. Алексеевой, подготовленная на основе диссертационного исследования «Базар Барадин – исследователь истории и культуры монгольских народов» [1]. Представленный в приложении монографии персональный указатель содержит систематизированный перечень трудов Б. Барадина, литературы и жизни, и деятельности. Особо хочется выделить структуру указателя. Разбивка включенного материала по тематическим и жанровым рубрикам позволяет проследить возрастающую динамику интереса к личности - историческому портрету Б. Барадина в той или иной области знания. При этом видно стремление составителя более детально представить опубликованные и неопубликованные труды Б. Барадина, проведя многочисленные изыскания по архивным фондам Санкт-Петербургского филиала Института Востоковедения РАН, отдела памятников письменности Востока институтом монголоведения, буддологии и тибетологии г. Улан-Удэ. Нужно отметить, что материалы о научных трудах и творческой деятельности Б. Барадина хранятся в архивах других городов, в частности Улан-Баторе, Иркутске, Чите. О скрупулезном подходе составителя свидетельствует тот факт, что рукописные материалы, подписанные Б. Барадиным, варьируются по-разному в соответствии с принятыми традициями письма того времени [1].

На наш взгляд, персональный указатель представляет собой исчерпывающий перечень трудов Б. Барадина. По замечанию самого составителя, к сожалению, не включены работы, опубликованные на иностранных языках [1, с. 152].

В целом структурированный в персональном указателе документальный материал дает представление: во-первых, о многогранной деятельности и масштабах научного интереса; во-вторых, о том, насколько изучены отдельные стороны жизни, деятельности Б. Барадина, как известного российского востоковеда и общественного и государственного деятеля.

Время неуклонно подтверждает истинную значимость и масштабность личности Барадина. Он всегда имел собственную точку зрения и всегда выступал за европейско-восточное просвещение бурятского этноса в едином поликультурном пространстве Востока-Запада.

Основные даты жизни и деятельности Б. Барадина, систематизированные на основе печатных и архивных материалов, дают возможность понять

место и роль Б. Барадина в формировании культурно-национального строительства Бурятии и латинизации бурятской письменности, и в целом его многогранную деятельность, как исторически значимой фигуры на рубеже двух столетий (XIX-XX вв). Данный хронограф, представленный Л.Ц. Алексеевой, даёт возможность проследить жизненный путь, панораму научно-просветительской и общественно-политической, организаторской работы Б. Барадина [1, с. 165-166].

Настоящая оценка деятельности Базара Барадина началась с момента его реабилитации (март 1958 г.). Об это свидетельствуют многочисленные публикации в периодических изданиях, научных сборниках [3].

В память о Б. Барадине потомками проводятся многочисленные мероприятия. На его родине общеобразовательная школа носит имя Б. Барадина, установлен бюст и проходят научные конференции, посвященные его научно-творческой и общественной деятельности.

Перечень мероприятий в честь Б. Барадина представляет прямое зеркальное отражение памяти потомков и приоткрывают занавес к эпистолярному наследию знаменитого земляка – выходца бурятского этноса. Среди участников научных конференций есть как молодые исследователи-историковеды, так и маститые именитые ученые-исследователи, этнологи, языковеды.

Таким образом, личность Базара Барадина и его научно-просветительская, организаторская работа по достоинству оценены нашими современниками как одного из ученого-востоковеда, заложившего основу востоковедения как науки в истории России.

Практика показывает, что процесс создания электронной коллекции по персоналиям, в первую очередь, основывается на источниковедческих исследованиях, которые позволяют выявить и выделить уникальность в конкретных человеческих судьбах.

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Malakhova Julia Vitaljevna,

*Nizhniy Novgorod State Engineer-Economic University,
Associated Professor, Chair-Chief, Candidate of Sociological Sciences*

The Dilemma of the Young Chief

Малахова Юлия Витальевна,

*Нижегородский инженерно-экономический университет,
доцент, заведующая кафедрой, кандидат социологических наук*

Дилемма молодого шефа

Он приземлился в руководящее кресло с молодых ногтей, имеет желание самоутвердиться и собственное представление о стиле руководства, труда и общения – частенько это раздражает его возрастных подчинённых. Как избегать конфликтных ситуаций, ссор и стычек в джунглях офиса? На что обращать особое внимание при тесных контактах с недружественным, критически настроенным окружением? Как им руководить? Ответы на эти вопросы и содержит настоящая статья, основанная на исследовании автора.

Почти половина всех организаций страдает от конфликтов поколений: слишком велика разница во взглядах на руководство, трудовые ценности, способ осуществления профессиональной деятельности [3]. Сотрудники зрелого возраста уверены, что физическое присутствие на рабочем месте необходимо и свидетельствует о высокой производительности труда, надёжности, прилежании. Они первыми приходят на работу рано утром, трудятся даже в обеденный перерыв, не покладая рук, а вечером покидают своё рабочее место ровно в означенное время и отправляются домой с чувством исполненного долга.

Сотрудники помоложе легче относятся к рабочему графику. Всемирная сеть наложила на них свой отпечаток, и для них вовсе не важно, где и когда делать свою работу, днём ли, ночью ли – главное, чтобы она была сделана.

При столкновении столь разных подходов лёгкие конфликты вырастают до широкомасштабных войн, особенно если Вы как молодой шеф наступаете на

классические грабли: внезапно становитесь недостижимым, заносчивым или жёстко авторитарным, гордо дефилируете по коридорам офиса, подчёркивая своё особое положение неумным тщеславием или сверхфункционированием.

По утверждению 69% служащих Германии и 19% работников фирм Великобритании, допуск к руководству возможен только для сотрудников определённого возраста, достаточно зрелых и обладающих серьёзным опытом, [1]. В России в этом уверены 72,32 % персонала частных фирм сферы услуг, что показал наш опрос (анкетирование проводилось в 2014 году, респонденты от 32 до 56 лет, мужчины и женщины, образование высшее и среднетехническое).

Вы молодой шеф? Во избежание межличностных трений, с первого рабочего дня берите в свои руки заботу о возрастном крыле своего офиса. Иначе неизбежен конфликт поколений: старшие сотрудники почувствуют себя обиженными и обойдёнными и на этом фоне могут даже саботировать работу. И тогда прощай успешная карьера. Чтобы этого не произошло, изучайте типы сотрудников, которые, возможно, «населяют» подконтрольную Вам территорию: какие они, как с ними обходиться и как ими руководить?

«Контролёр». Его девиз: «За каждой мухой – с обухом». Вот такой он! Постоянно сомневается в себе, что доставляет ему страдание. Он страдает и от недостатка авторитета. Соответственно не доверяет никому и хочет информации обо всём и обо всех, постоянно и неукоснительно. Он никому не позволит свалить его с его должности, бдительно охраняя свои рубежи. НО! Постоянный и неусыпный контроль – только иллюзия и одновременно тормоз: он не позволяет двигаться вперёд, колея карьеры зарастает сорняками, затягивается тиной и упирается в топкое болото. Бесценное время потеряно, силы для профессионального роста иссякли. Выход: мощным усилием вырваться из унылой трясины и вскочить на подножку устремлённого в перспективное будущее скоростного экспресса под названием «Шанс». Он гарантирует увлекательное путешествие в страну саморазвития и самосовершенствования.

«Бюрократ». Его девиз: «Ещё один кирпич в стене...». В профессиональном отношении его никто и ни в чём не может упрекнуть. Он знает всё до последней запятой в рамках своей компетенции и должностных обязанностей и постоянно поднимается ещё на одну ступеньку. Он добросовестен и

скрупулёзен, самолюбив и тщеславен, лоялен и пунктуален. Он первым приходит на службу утром и последним уходит вечером домой. По глупости ожидает того же от коллег. Кто не так же усердно работает, как он, и не так ответственен, получает от него «чёрную метку» порицания и надолго исключается из его списка благонадёжных сотрудников. Как его исправить: поработать над обретением и реализацией социальных компетенций. Нетерпимость и педантичность убивают креативность и мотивацию. Все люди разные – и, соответственно, работают по-разному. Не важно, кто и как воюет – важен результат. Наконец, перемены не всегда следует огульно относить к негативу – иногда они могут послужить и благим целям.

«Любезный». Его девиз: «Я бы сделал что-нибудь из любви к Вам!». Вот так он устроен! На авансцене для него – полная гармония на рабочем месте. Сотрудники слушаются его, потому что хорошо к нему относятся. Он избегает любых конфликтов, потому что убеждён: маленькая проблема может легко разрастись до ужасной катастрофы. НО! Шефам платят их большие деньги не за то, чтобы выигрывать соревнования в любезности. Им платят за правильные решения. Даже принятые при абсолютном сопротивлении штата. Всем никогда не угодить. Даже робкие попытки мгновенно дисквалифицируют и молодого, и возрастного руководителя.

«Тщеславный». Его девиз: «Я верю, что могу летать!». Именно так. Его кредо – шутка Марка Твена: «Я люблю критику – но я должен быть с ней согласен». Его чувство собственного достоинства основано на прежних успехах, о которых он очень охотно говорит. Ведь если бы он не был суперменом, достиг бы он таких высот? Вот именно! Поэтому собрания превращаются в самопрезентации, а собеседования – в аудиенции. НО! Даже король-солнце живёт в окружении людей и даже ему может быть объявлен бойкот. Тот, кто хвалит только себя, а остальных критикует, получает по полной программе: люди уходят в себя, «увольняются» по собственному желанию и выполняют свои должностные обязанности только от и до. А ведь именно молодым шефам требуется поддержка и помощь каждого члена команды. Разгонять людей для них смертельно опасно.

«Охранитель». Его любимое изречение: «Что раньше было хорошо, сегодня не может быть плохим». Типичное поведение: новые технологии для него – книга за семью печатями. На электронные письма он отвечает только

через несколько часов, а SMS полностью игнорирует. Вообще-то он надёжен и честен, но поскольку новые порядки актуальной реальности его напрягают, он склонен к стрессам, меланхолии и жалобам. Как им руководить? Этот случай требует большого терпения. Ему нужно внушить, что в новом нет ничего плохого, автоматически отвергать новое неправильно и этого делать не следует. И даже, имея за плечами достаточный опыт, вовсе не поздно и не стыдно учиться и переучиваться. Это абсолютно необходимо. Для молодого шефа такая линия взаимодействия с Охранителем может показаться до отвращения вязкой, липкой, но нужно твёрдо стоять на своих позициях и держаться до конца. В любом случае, руководство людьми вовсе не лёгкая работа, тем более, что коллеги, уверенные в обладании особыми правами, постоянно стараются внести диссонанс в зыбкую гармонию производственного климата. Поэтому, сохраняя твёрдое терпение и проявляя железную выдержку, не допускайте никаких внутренних сомнений и не позволяйте сомневаться другим в своём безоговорочном праве руководить ими.

«Молодящийся». Его коронное изречение: «Нам столько лет, на сколько мы себя чувствуем». Типичное поведение: сразу после того, как молодой шеф приступил к исполнению своих обязанностей, Молодящийся меняет старые джинсы на шикарный костюм от известных дизайнеров, демонстрирует сотрудникам свой новый iPhone и гордо сообщает и шефу, и коллегам, что купил супруге дорогой подарок от eBay. НО внимание! Этот тип испытывает постоянный страх, что молодой руководитель выкинет его за борт как отслуживший и устаревший материал. Вполне возможно, что за внешне благополучным фасадом скрывается окостенелость «Охранителя». Возможно, он и сам не понимает, как ему вести себя с новым руководством. Вам следует рассеять его неуверенность и ясно показать, что на него рассчитывают и что его сотрудничество и участие в новых проектах востребованы. На этом фоне лояльность Молодящегося вырастет до небес.

«Завистливый». Его вечная присказка: «Мир неблагодарен». И если бы речь шла о нём, он давно бы стал руководителем. Но судьба распорядилась иначе. Кроме того, его самооценка существенно отличается от его внешней оценки, от того, как его воспринимают коллеги. Поэтому он слишком болезненно реагирует на то, что его обошли с повышением. В своей фрустрации он либо уходит в себя, либо твердит на каждом углу, что знает и

умеет всё гораздо лучше нового шефа. Этот тип сотрудника опасен. Его раздутая зависть может толкнуть его на коварные интриги или на разрушение эмоционально-психологической сбалансированности атмосферы офиса. Тяжёлый случай – Вам нужно сильно напрячься, чтобы решить эту проблему. Можно попробовать войти к нему в доверие. Например, внушить ему, что он – важнейшее связующее звено между руководством и персоналом. Следует тщательно избегать всего, что может увеличить его зависть. И постоянно держать его в поле зрения. Потому что его реакция на сотрудничество может быть двойкой: либо он становится главным доверенным лицом шефа, либо использует доверие против шефа, начиная плести различные интриги. Тогда только один выход – безжалостное увольнение интригана.

«Учитель». Его постоянный рефрен: «Когда я был в Вашем возрасте ...». Для него типично: неустанно рассказывать о своём богатом опыте. Он уже всё подобное делал, всё повидал, он знает всех и всё обо всех. Он охотно всем об этом сообщает. НО! Нужно крепко подумать, прежде чем пускаться с ним в дискуссию. Вполне возможно, что это превратится в пустую болтовню и только отнимет время. Скорее всего, он относится к людям, которые сопротивляются любой науке. Но всё же попытка не пытка, можно попробовать – а вдруг повезёт, и Учитель поучится или даст полезный урок. В противном случае надежда только на авторитет руководителя: да, его выслушали, но решили по-своему. Всё. Конец дискуссии.

Это портреты типичных представителей офисных джунглей, с кем ухо надо держать востро. Иначе всё пойдёт кривь и вкось, работа вывалится из рук, а Вы сами будете страдать от психологических перегрузок на службе. Постоянное беспокойство о своём рабочем месте, бесконечные конфликты с коллегами, проблемы в личной жизни. Люди подвержены стрессам сегодня, как никогда. По данным исследований [2], 75 % работающих чувствуют свою чрезмерную перегрузку на работе, 29,7 % жалуются на частые головные боли, 26,7 % служащих и 14,8 % менеджеров страдают от постоянной бессонницы. 10 % уверены в своей скорой и абсолютной нетрудоспособности из-за нескончаемых стрессов. Конечная станция: «Психологические перегрузки». Пациентами клиник и психотерапевтов стали не только топ-менеджеры, эту когорту пополнили представители всех отраслей производства и все слои сотрудников. Проблема в том, что мы спохватываемся слишком поздно: гром

начинает греметь над уже совершенно больной головой. Чтобы избежать этого, прислушаемся к своему телу и своевременно примем все меры.

От психологических перегрузок страдают не только ленивые и посредственные сотрудники. Стрессам подвержены также и успешные, ангажированные специалисты, причём гораздо чаще, чем равнодушные лентяи. Они чувствуют себя изнурёнными, измученными, обессиленными не только физически, но и психически. Частенько они становятся мучениками своих собственных претензий, если склонны к перфекционизму. Это – богатая питательная почва для стрессов и психологических перегрузок. Следовательно, под ударом живут те, кто считает себя незаменимым и очень зависим от похвалы окружения. Чтобы вырваться на свободу из тисков фрустрации, основательно переосмыслите своё отношение к работе.

Итак, резюме. Тщательно исследуйте поле Ваших боевых действий. Постарайтесь превратить своих противников в надёжных союзников. Вашу дилемму можно разрешить только тем или иным способом; третьего не дано. А Ваша молодость поможет Вам сохранить позитивное отношение к окружающей реальности.

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Neduzhko Yury Victorovich,

Volyn Institute for Postgraduate Education,

Professor, Doctor of Historical Sciences

***The Activity of the Ukrainian Diaspora, Authorities
and the Public of Ukraine Concerning Lighting Truth
and Perpetuate the Memory of Victims of Holodomor
of 1932-1933 Years***

Недужко Юрій Вікторович,

Професор Волинського інституту післядипломної

педагогічної освіти, доктор історичних наук

***Діяльність української діаспори, органів влади
і громадськості України щодо висвітлення правди
та увічнення пам'яті жертв Голодомору
1932-1933 років***

Вступ. Актуальність даного дослідження визначається необхідністю всебічного і глибокого вивчення історії, особливо тих її аспектів, які тривалий час перебували поза увагою дослідників. До таких, серед інших, відноситься діяльність організацій української діаспори та органів влади і громадськості України щодо дослідження, висвітлення правди і увічнення пам'яті жертв Голодомору 1932-1933 років в Україні.

В основу наукової роботи покладені власні ідеї автора, які ґрунтуються на його попередніх наукових дослідженнях, а також працях вітчизняних і зарубіжних науковців. З 1996 року автор успішно працює над науковими дослідженнями, присвяченими: діяльності української діаспори щодо становлення та розбудови незалежної демократичної України, зокрема, висвітленню закордонними українцями правди про трагічні сторінки Голодомору 1932-1933 років в Україні, вшануванню ними славного минулого нашої Батьківщини в ході

великомасштабного відзначення Тисячоліття хрещення Русі-України, зусиллям зарубіжних українців, спрямованим на дотримання релігійної свободи та прав людини в Україні, підтримку європейських прагнень нашої держави і становлення демократії в Україні.

Наукова робота виступає продовженням його попередніх досліджень історії та державотворчих зусиль української діаспори. Вона присвячена пам'яті жертв жахливої трагедії українського народу - Голодомору 1932-1933 років в Україні.

В історичній літературі дана проблема практично не досліджена. Ряд наукових публікацій присвятили висвітленню діяльності української еміграції щодо вшанування пам'яті жертв Голодомору 1932-1933 років в Україні відомі вітчизняні та зарубіжні вчені: Станіслав Кульчицький, Володимир Марочко, Джеймс Мейс, Френк Сисин, Василь Дідюк, Любомир Лаврівський, а також український журналіст очевидець тих подій Аркадій Сидорук [1]. Вплив відзначення скорботного ювілею Голодомору 1932-1933 років в Україні на боротьбу закордонних українців за демократію та державну незалежність України дослідив у своїх наукових працях і автор цих строк [2]. Проте багато аспектів цієї непересічної події ще вимагають свого висвітлення.

Тому дослідження діяльності організацій української діаспори та органів влади, наукових установ і громадськості України щодо висвітлення правди і увічнення пам'яті жертв Голодомору 1932-1933 років в Україні викличе значну зацікавленість як професійних науковців, так і представників політичних партій, громадського загалу і може становити суспільну користь за нинішніх складних умов перехідного періоду українського державотворення, стане однією з форм співпраці із зарубіжними українцями.

Практичне значення дослідження полягає у можливості його використання для написання узагальнюючих праць із всесвітньої історії, новітньої історії України, історії української еміграції, політології, під час навчального процесу у вищих і середніх навчально-освітніх закладах.

Результати наукового дослідження можуть бути використані органами влади та політичними силами країни з метою формування державної політики по відношенню до зарубіжних українців, створення позитивного іміджу України у світі та вирішення того чи іншого українського питання на міжнародному рівні.

Постановка завдання. Мета роботи – на основі осмислення нових документів, матеріалів і спогадів учасників подій, узагальнення здобутків історіографії всебічно охарактеризувати і висвітлити діяльність організацій української діаспори та органів влади і громадськості України щодо висвітлення правди і увічнення пам'яті жертв Голодомору 1932-1933 років в Україні.

Серед завдань дослідження: вивчити роль української діаспори, органів влади та громадськості у висвітленні правди про Голодомор 1932-1933 років в Україні; дослідити міжнародну діяльність України та організацій закордонного українства, спрямовану на визнання Голодомору 1932-1933 років в Україні та вшанування пам'яті його жертв; висвітлити проведення заходів щодо увічнення пам'яті жертв Голодомору 1932-1933 років в Україні з нагоди 75-ї річниці цієї жахливої національної трагедії.

Результати дослідження. У 1981 році українська діаспора країн Заходу розпочала великомасштабну міжнародно-інформаційну кампанію щодо дослідження, висвітлення правди та вшанування пам'яті жертв Голодомору 1932–1933 років в Україні, приурочену до 50-річчя цієї жахливої трагедії українського народу. Активну участь у ній взяли понад 120 громадсько-політичних, релігійних, наукових, жіночих, молодіжних та професійних об'єднань закордонних українців.

Діяльність української діаспори в ході міжнародно-інформаційної кампанії щодо висвітлення правди про Голодомор 1932–1933 років в Україні була сконцентрована в декількох напрямках:

- підготовці наукових праць та проведенні міжнародних конференцій, присвячених Голодомору 1932–1933 років;
- організації маніфестацій, мітингів та інших багатолюдних акцій на відзначення цієї трагічної події;
- організації масштабної інформаційної кампанії в мас-медіа із залученням іноземних PR-агенств, а також підготовці документального фільму про трагедію Голодомору і трансляцію його в країнах Заходу;
- залученні офіційних осіб та органів влади країн Заходу до участі в діяльності української громади з метою державного визнання трагедії українського народу шляхом створення Комісії Конгресу США з вивчення голоду в Україні та Міжнародної комісії з розслідування голоду в Україні у 1932–1933 роках. Робота комісій такого рівня передбачала автоматичне визнання їх висновків міжнародним співтовариством, що надавало величезні можливості

українській громаді для їх інформаційного використання та відкривало шлях для висунення звинувачень органам влади СРСР у геноциді українського народу, адже “злочини проти людяності” не мали строку давності [3, С. 398-399].

Необхідно зазначити, що активну участь в міжнародно-інформаційній кампанії української діаспори щодо дослідження, висвітлення правди та вшанування пам'яті жертв Голодомору 1932–1933 років в Україні брала Катерина Михайлівна Юценко. Вона очолювала в 1983–1984 роках Українську національну інформаційну службу у Вашингтоні, в 1986–1988 роках працювала асистентом з особливих доручень у заступника Держсекретаря США з питань прав людини і гуманітарних справ, а починаючи з квітня 1988 по січень 1989 р. була заступником голови Офісу громадських зв'язків Білого дому. Катерина Михайлівна багато зробила для висвітлення правди про Голодомор 1932–1933 років в Україні, безкомпромісно відстоюючи право власного народу на незалежну демократичну Україну [3, С. 405-406].

Кампанія української діаспори щодо висвітлення правди про Голодомор 1932–1933 років в Україні мала ряд наслідків:

По-перше, весь світ дізнався про жакливу трагедію українського народу в контексті прагнень його до державної незалежності.

По-друге, органи влади СРСР були визнані на міжнародному та державному рівні винуватими в організації геноциду українського народу, під час якого загинуло за різними оцінками від 4,6 до 10 млн осіб.

По-третє, органи влади СРСР і УРСР вимушені були визнати сам факт голоду 1932–1933 років, чого до цього не було. А вчені в Україні розпочали його вивчення.

По-четверте, інформація про цей жакливий злочин сталінського режиму серйозно підірвала позиції КПРС та КП(б)У в Україні.

По-п'яте, факти Голодомору, підтверджені Міжнародною комісією з розслідування Голоду в Україні у 1932–1933 роках і Комісією Конгресу США з вивчення Голоду в Україні та тиражовані в мас-медіа, безсумнівно, сприяли зміні позиції багатьох державних діячів, політиків, науковців і журналістів у бік підтримки права українського народу на відновлення власної незалежної держави.

По-шосте, були значно зміцнені позиції української громади серед суспільств країн свого проживання.

По-сьоме, виявлені факти про Голодомор 1932–1933 років, а саме масштаб цієї трагедії, надавав національно-демократичним силам в УРСР додаткових аргументів та моральної наснаги в боротьбі за відродження державної незалежності України [3, С. 426-427].

Історичний факт Голодомору 1932-1933 років в Україні визнали близько 70 країн світу, у тому числі парламенти 19 країн визнали його актом геноциду. Своє ставлення до цієї трагедії висловили також Іоанн Павло II та Генеральний директор ЮНЕСКО К. Мацуура, які у 2003 році надіслали на адресу Українського народу відповідні послання у зв'язку з 70-ми роковинами Голодомору. Пам'ятники або пам'ятні знаки жертвам голодоморів в Україні встановлено у низці країн світу - Австралії, Австрії, Аргентині, Бельгії, Естонії, Казахстані, Канаді, Росії (Тюмень), США (Вашингтон, Чикаго, Клівленд), Угорщині.

Важливим у політичному плані стало ухвалення 58-ю сесією ГА ООН "Спільної заяви з нагоди 70-х роковин Голодомору - Великого голоду 1932-1933 років в Україні", яку було розповсюджено як офіційний документ 58-ї сесії ГА ООН. Співавторами Спільної заяви (а по суті - Декларації) стали 36 держав-членів ООН, у тому числі Аргентина, Азербайджан, Бангладеш, Білорусь, Бенін, Боснія і Герцеговина, Гватемала, Грузія, Єгипет, Іран, Казахстан, Канада, Катар, Киргизстан, Кувейт, Македонія, Монголія, Науру, Непал, Об'єднані Арабські Емірати, Пакистан, Перу, Південно-Африканська Республіка, Республіка Корея, Республіка Молдова, Російська Федерація, Саудівська Аравія, Сирійська Арабська Республіка, Сполучені Штати Америки, Судан, Таджикистан, Туркменистан, Тимор-Леште, Узбекистан, Україна та Ямайка, її підтримали також Австралія, Ізраїль, Сербія і Чорногорія, 25 країн-членів ЄС. При цьому жодна з решти країн-членів ООН не висловилася проти. Вперше в історії ООН визначила Голодомор 1932-1933 років як національну трагедію українського народу, висловила співчуття його жертвам та закликала всі держави-члени Організації, її спеціалізовані установи, міжнародні та регіональні організації, неурядові організації, фонди і асоціації віддати данину пам'яті тим, хто загинув у цей трагічний період історії.

За результатами Спеціального засідання Верховної Ради України 14 травня 2003 року щодо вшанування пам'яті жертв Голодомору 1932-1933 років було прийнято Постанову від 15 травня 2003 року за № 789-IV, яка схвалила

Звернення до Українського народу із зазначенням характеру Голодомору 1932-1933 років як геноциду.

В 2005-2009 роках органи влади України розгорнули масштабну кампанію щодо висвітлення правди та увічнення пам'яті жертв Голодомору 1932-1933 років з нагоди 75-ї річниці величезної трагедії українського народу. Величезна роль в ній відводилася закордонному українству. Міжнародно-інформаційна кампанія мала на меті ряд цілей.

По-перше, відзначення жахливої трагедії, від якої постраждали мільйони людей по всій Україні, повинно було консолідувати навколо себе весь український народ, як в Україні, так і поза її межами. Адже кількість її жертв можна порівняти лише з втратами України у Другій світовій війні. Існування могутньої процвітаючої незалежної демократичної Української держави повинно було виступити гарантом неповторення у майбутньому нового геноциду українського народу. Тобто спільне вшанування пам'яті жертв Голодомору 1932-1933 років повинно було консолідувати український народ задля недопущення у майбутньому повторення подібної трагедії.

По-друге, згадана діяльність виступала продовженням кампанії української діаспори щодо висвітлення правди та вшанування пам'яті жертв Голодомору 1932-1933 років в Україні, яка проходила у 80-х роках минулого століття та відчутно сприяла переконанню зарубіжних державних діячів, політиків, вчених, мас-медіа та громадськості у потребі підтримки державних прагнень українського народу. На цей раз зусилля української громади були також спрямовані на переконання західних суспільств у тому, що український народ поніс величезні жертви у минулому з боку тоталітарного режиму СРСР, спадкоємцем якого виступав авторитарний режим Російської Федерації. Саме тому тільки збереження демократичного ладу в Україні та її інтеграція до Європейського Союзу, НАТО, а також прийняття до СОТ, поряд із наданням необхідної закордонної допомоги та інвестицій, може запобігти повторенню подібної трагедії у майбутньому. Країнам Заходу, особливо США, нагадувалася негідна поведінка їх урядів, які замість того, щоб відповідним чином відреагувати на Голодомор 1932-1933 років в Україні та спинити планове винищення українського народу, саме в той час налагодили дипломатичні відносини із СРСР та закуповували зерно, відібране в українських селян, що гинули з голоду. Це повинно було на моральному психологічному рівні вплинути

на політику західних країн щодо сьогодношньої України. Акцією щодо позбавлення Пулітцерівської премії кореспондента «The New York Times» Волтера Дюранті, за порушення морального кодексу журналіста та брехливі твердження про відсутність Голоду в 1932-1933 роках в СРСР, закордонні українці повинні були вплинути на західні мас-медіа з метою сприятливого та об'єктивного становлення як до України, так і до закордонної української громади.

По-третє, органи влади України вважали, що великомасштабне міжнародне відзначення пам'яті жертв Голодомору 1932-1933 років в Україні буде стримувати «імперські амбіції Кремля», тобто сприятиме виробленню зваженої політики російського керівництва стосовно України.

По-четверте, консолідація світового українства навколо вшанування пам'яті жертв Голодомору 1932-1933 років в Україні підвищувала міжнародний імідж України та українського народу, як нації, яка пережила важкі, страхітливі моменти своєї історії, проте не схилилася, не здалася, а виборола власну державність та продовжує свій шлях розвитку у напрямку до демократії та європейської і євроатлантичної інтеграції.

По-п'яте, активна участь українських можновладців в організації відзначення пам'яті жертв Голодомору 1932-1933 років в Україні дозволяла їм підвищити власний рейтинг популярності в українському суспільстві як національних лідерів країни напередодні президентських виборів 2010 року. Адже урочистості за задумом організаторів не завершувалися в 2008 році, а повинні були тривати, майже до самих виборів, весь 2009 рік.

Органами влади країни було прийнято ряд нормативно-правових актів щодо висвітлення правди та увічнення пам'яті жертв Голодомору 1932-1933 років в Україні. Зокрема, Указ Президента України В. Ющенко від 11.07.2005 за №1087 "Про додаткові заходи щодо увічнення пам'яті жертв політичних репресій та голодоморів в Україні", окрім інших важливих положень, містив доручення Уряду створити Український інститут національної пам'яті, а також підготувати і внести в установленому порядку на розгляд Верховної Ради України законопроект щодо політико-правової оцінки голодоморів в історії Українського народу. Указ Президента України В. Ющенко від 4.11.2005 за №1544 "Про вшанування жертв та постраждалих від голодоморів в Україні" передбачав створення Оргкомітету на чолі з Прем'єр-міністром України з відзначення 75-х

роковин Голодомору 1932-1933 років в Україні та проведення низки інших заходів, зокрема прискорення підготовки та подання законопроекту щодо політико-правової оцінки голодоморів в історії Українського народу, здійснення додаткових заходів щодо визнання міжнародною спільнотою Голодомору 1932-1933 років в Україні як геноциду Українського народу та однієї з найбільших трагедій в історії людства, вирішення питання щодо спорудження в м. Києві Меморіалу пам'яті жертв голодоморів в Україні. Указ Президента України В. Ющенка від 12.10.2006 за № 868 "Про відзначення у 2006 році Дня пам'яті жертв голодоморів та політичних репресій" затвердив Оргкомітет з відзначення у 2006 році Дня пам'яті жертв голодоморів та політичних репресій, передбачав 25 листопада 2006 року приспущення Державного Прапора на території країни, оголошення Загальнонаціональної Хвилини мовчання та низку інших заходів, зокрема прискорення проектування та спорудження Меморіального комплексу пам'яті жертв Голодомору 1932-1933 років, активізацію роботи з визнання міжнародною спільнотою Голодомору 1932-1933 років в Україні як геноциду Українського народу та однієї з найбільших трагедій в історії людства.

28 листопада 2006 року Верховна Рада України прийняла Закон № 376-V "Про Голодомор 1932-1933 років в Україні", згідно з яким зобов'язала органи державної влади та органи місцевого самоврядування: сприяти консолідації та розвитку української нації, її історичної свідомості та культури, поширенню інформації про Голодомор 1932-1933 років в Україні серед громадян України та світової громадськості, вживати заходів щодо увічнення пам'яті жертв та постраждалих від Голодомору 1932-1933 років в Україні.

Весь 2008 рік в Україні був оголошений Роком пам'яті жертв Голодомору. Про це заявив Президент України Віктор Ющенко в Харкові під час засідання Координаційної ради з підготовки заходів у зв'язку з 75-ми роковинами Голодомору 1932–1933 років. У всіх областях України пройшли заходи щодо увічнення пам'яті жертв Голодомору 1932-1933 років в Україні. 10 червня 2008 року у с. Високі Байраки Кіровоградської області Президент України Віктор Ющенко започаткував акцію «33 хвилини» на підтримку ініціативи Національної скаутської організації «ПЛАСТ». Мета акції - вшанування та увічнення пам'яті жертв Голодомору та посилення уваги суспільства до злочинів тоталітарної системи. Формат акції - щовихідних у центрі населеного пункту або у місцях, що асоціюються з тоталітарним режимом, членами місцевих молодіжних

організацій, громадськості рівно 33 хвилини зачитувалися імена загиблих земляків, свідчення очевидців з регіональної Книги пам'яті. В областях, що не постраждали від Голодомору, зачитувалися свідчення очевидців. У червні 2008 року заходи пройшли у Києві та кількох обласних центрах, з початку вересня акція проходила вже у всіх обласних центрах, а з 1 листопада також і у районних центрах та містах обласного значення. Кожні вихідні в українських містах впродовж 33 хвилин зачитувались імена знищених Голодомором земляків та свідчення очевидців трагедії. Загалом по Україні в акції взяло участь понад 150 тис. громадян. Завершальний етап акції відбувся 22 листопада 2008 року в Києві перед відкриттям Меморіалу пам'яті жертв голодоморів [4].

15 листопада 2008 року в районах та містах Київської області з метою вшанування пам'яті загиблих в роки Голодомору 1932-1933 років в Україні проведено акцію «33 хвилини», під час якої було поіменно зачитано списки жертв Голодомору. В заходах взяли участь голови райдержадміністрацій, голови районних рад та їх заступники, представники облдержадміністрації, керівники структурних підрозділів райдержадміністрацій, представники районних та міських осередків політичних партій, громадських організацій, учні, студенти, місцеві жителі. 17 листопада 2008 року в колонному залі ім. М. Лисенка Національної філармонії України відбулася презентація Київського обласного тому Національної книги пам'яті жертв Голодомору 1932-1933 років в Україні. У фойє філармонії оформлено виставку архівних, фото документів з матеріалів державного архіву Київської області «Київщина. Голодомор 1932-1933 років» та виставку книг про Голодомор 1932-1933 років в Україні, виданих на Київщині. Найбільш активним дослідникам Голодомору, які готували матеріал до обласного тому Національної книги пам'яті жертв Голодомору 1932-1933 років в Україні, вручено Подяки голови облдержадміністрації.

15 листопада 2008 року ВОО «Наша Україна» на Замковій площі Луцька біля пам'ятного знаку Жертвам політичних репресій та голодоморів провела акцію «33 хвилини». Було оголошено більше двох сотень імен осіб, загиблих внаслідок Голодомору 1932-1933 років. Цього ж дня у школах сіл Колодеже та Бережанка Горохівського району Волинської області учнівська молодь та члени міських молодіжних громадських організацій провели акцію «33 хвилини». Її учасники ознайомилися з пересувною фотодокументальною виставкою «Ми звинувачуємо». У Луцькому районному Будинку культури відбулася презентація

книги Григорія Гуртового «Голгофа голоду: Спогади про пережите». Перед численною аудиторією виступили свідки Голодомору 1932-1933 років Клавдія Романюк та Михайло Ротко. Книга присвячена 75-річчю пам'яті багатомільйонних жертв Голодомору 1933 року. У ній вміщено спогади не лише автора, а й багатьох тих, хто був свідком або сам пережив у ті роки неймовірні страждання українського народу.

15 листопада 2008 року у Херсоні відбулося урочисте підбиття підсумків обласної акції «Свіча пам'яті». Протягом року волонтери в районах області збирали свідчення від очевидців Голодомору на Херсонщині 1932-1933 років, знаходили місця масових поховань, складали та відновлювали реєстри загиблих від голоду тощо. Учні загальноосвітніх шкіл, студенти та громадськість районів зібралися у приміщенні кіноконцертного залу обмінятися думками, поділитися досвідом та визначити переможців акції. Перед присутніми виступив голова облдержадміністрації Борис Сіленков. У програмі підведення підсумків акції відбулися: нагородження дипломами найактивніших учасників акції, відзначення подяками волонтерських команд, виступи професійних та самодіяльних колективів, слайдова презентація підсумків обласної акції, вшанування пам'яті загиблих хвилиною мовчання. Усім учасникам акції вручено подарунки - книжкові бібліотечки. У фойє зали працювала обласна тематична виставка архівних та фотоматеріалів, матеріалів обласної акції «Свіча пам'яті» - «Пам'ятаємо душею і серцем», із слайдовою презентацією ходу акції в бібліотеках області.

18 листопада 2008 року у Донецьку відбулася презентація документального фільму «Діти 33-го: не казка про чорного ворона», присвяченого 75-м роковинам Голодомору 1932-33 років. Фільм знятий Донецькою ОДТРК. Зйомки проходили на території п'яти районів Донецької області і весь фактичний матеріал будувався на підставі документальних зйомок безпосередніх свідків голодомору - жителів Красноармійського, Мар'їнського, Старобешівського, Великоновоселківського та Слов'янського районів, яким в 1932-1933 роках було по 5-12 років. Також для підготовки фільму був використаний матеріал архівів Служби безпеки Донецької області і Державного архіву Донецької області.

У рамках заходів до 75-х роковин Голодомору 1932-1933 років в Запорізькій обласній державній адміністрації відбулася презентація регіонального тому Національної книги пам'яті. У заході взяли участь голова облдерж-

адміністрації Олександр Старух, його заступник Микола Фролов, професор Запорізького національного університету, голова редакційної колегії Книги Пам'яті Федір Турченко, директор Державного архіву Запорізької області Олександр Тедєєв, директор видавництва «Дике поле» Олександр Лазутін. В області вже не перший рік велася системна робота щодо вшанування пам'яті жертв Голодомору 1932-1933 років. На Запоріжжі встановлено 7 пам'ятників та 76 пам'ятний знак жертвам Голодомору. Завдяки спільним зусиллям органів влади, науковців, громадських організацій виявлено 40 місць масових поховань жертв голоду, зібрано понад три тисячі свідчень осіб, які пережили ті страшні роки. Державним архівом Запорізької області створено реєстр, що налічує 30 фондів, які містять 890 документів про трагічні події Голодомору 1932-1933 років. Визначено 111 колгоспів, які були занесені на «чорну дошку» та приречені на голодну смерть.

За даними управління з питань внутрішньої політики Луганської облдержадміністрації, станом на 18 листопада 2008 року в Луганській області відкрито 280 пам'ятних знаків жертвам Голодомору 1932-1933 років в Україні. Зокрема, пам'ятний знак відкрито 17 листопада у селі Сміле Слов'яносербського району. 18 листопада урочисте відкриття й освячення пам'ятних знаків та хрестів жертвам Голодомору 1932-1933 років в Україні відбулось у селах Красне Поле, Первомайське та Височинівка Марківського району.

19 листопада в усіх навчальних закладах Миколаївської області відбувся перегляд Всеукраїнського уроку-пам'яті за участі Президента України В. Ющенка, в якому взяли участь понад 106 тис. учнів. 19 листопада в Миколаївській області відбувся єдиний День інформування населення за темою «До 75-х роковин Голодомору 1932-1933 років в Україні». Члени інформаційно-роз'яснювальних груп виступили у 702 колективах, установах та організаціях області. Всього інформаційною роботою охоплено понад 41995 тис. чол.

Протягом 2007-2008 років в Хмельницькій області видано понад 30 книг, збірників, брошур, присвячених темі голодомору, у т.ч. об'ємна збірка архівних документів «Розп'яте Голодомором Поділля» про Голодомор 1932-1933 років на Хмельниччині. Відкрито поіменну фонд-колекцію, в котрій зібрано дані про 17962 особи, які загинули в 1932-1933 роках від голоду. Опрацьовано 104 метричні книги актів реєстрації смертей 1932-1933 років, складено статистичні відомості поіменно встановлених жертв Голодомору в розрізі районів і міст

області в кількості 34089 осіб. Укладено список 835 населених пунктів, які постраждали від Голодомору, 3 населених пункти зникли, 5 затоплені у зв'язку з будівництвом Дністровського водосховища. Зібрано та систематизовано по районах і містах області списки 93333 громадян, які постраждали від Голодомору 1932-1933 років. Виявлено понад 120 місць масових поховань жертв Голодомору 1932-1933 років та вжито заходи щодо їх упорядкування.

19 листопада 2008 року у Підволочиському районі Тернопільської області, на кордоні Тернопільської та Хмельницької областей, відбулося відкриття пам'ятника жертвам Голодомору. Пам'ятник має вигляд прикордонного межового стовпа, пронизаного колючим дротом. До стовпа прихилений сніп пшениці, який перевитий вишитим рушником. Монумент символізує надання галичанами допомоги братам-українцям з Наддніпрянщини. Вибір місця для встановлення пам'ятника пов'язаний з трагічними подіями 30-х років минулого століття, коли жителі Галичини переправляли на плотах через Збруч, на радянський бік, продукти та збіжжя, щоб допомогти жителям Великої України, де в той час панував Голодомор. 21 листопада 2008 року в Тернопільській області розпочалася міжнародна молодіжна акція Спілки Української Молоді в Україні «Сопричастя». Кожен, хто погодився брати участь в цій акції, взяв на себе добровільне зобов'язання суворого посту, без вживання страви, впродовж 33 годин з 7.00 21 листопада 2008 року до 16.00 22 листопада 2008 року. Це було своєрідною особистою жертвою на помин душі померлих від голоду 1932-1933 років. Також впродовж 33 годин участі в акції кожен її учасник повинен був зробити добре діло, метою якого є допомога ближньому.

22 листопада 2008 року в Києві за участі керівництва держави, міжнародної громадськості та представників всіх регіонів нашої країни пройшли урочисті заходи щодо відзначення 75-ї річниці Голодомору 1932-1933 років в Україні. Президент України В.А. Ющенко урочисто відкрив Національний музей “Меморіал пам'яті жертв голодоморів в Україні”, побудований в парку Вічної Слави, неподалік від Києво-Печерської Лаври. Разом з усією Україною учасники заходу підтримали національну хвилину мовчання та всеукраїнську акцію “Засвіти свічку”.

Закордонні українці також розгорнули активну діяльність з метою належного відзначення 75-ї річниці Голодомору 1932-1933 років в Україні. В жовтні 2006 року був створений Міжнародний Координаційний Комітет

Голодомору Світового Конгресу Українців (МКК СКУ). Очолив його Стефан Романів. Членами комітету стали лідери організацій української діаспори та відомі представники зарубіжної української громади. Серед них, зокрема, Аскольд Лозинський, Євген Чолій, Михайло Савків, Богдан Футей, Роман Сербин, Юрій Ключас, Ірина Мицик, Надія Луців, Морган Вільямс. Загалом до складу комітету увійшло понад 60 осіб з різних країн світу [5, С. 203].

Серед завдань МКК СКУ були наступні:

1) Сприяти визнанню Голодомору 1932-1933 років в Україні геноцидом українського народу в парламентах іноземних держав, а також міжнародних організаціях.

2) Сприяти впровадженню вивчення Голодомору 1932-1933 років в Україні в шкільні програми.

3) Вивчити можливості щодо проведення судових справ від імені жертв Голодомору 1932-1933 років проти Російської Федерації як спадкоємця СРСР, а також проти західних корпорацій, які наживалися внаслідок Голодомору 1932-1933 років в Україні.

4) Сприяти великомасштабному відзначенню величезної трагедії українського народу на світовому рівні [5, С. 203].

Влада України активно підтримала дії української діаспори. Посольства України у зарубіжних країнах отримали вказівку від МЗС усіляко сприяти діям українських громад цих країн. МЗС України та українські дипломатичні представництва в різних країнах світу спільно з громадськими організаціями зарубіжних українців розгорнули напружену діяльність щодо визнання міжнародними організаціями та органами влади іноземних держав Голодомору 1932-1933 років в Україні – актом геноциду українського народу.

Неодноразово відбувалися зустрічі та наради керівництва МКК СКУ з Президентом України Віктором Ющенко, Першою леді України Катериною Ющенко та працівниками її фонду «Україна - 3000», Прем'єр-міністром України Юлією Тимошенко, віце-прем'єр-міністром України з гуманітарних питань Іваном Васюником, головою СБУ Валентином Наливайченко, міністром культури і туризму України Василем Вовкуном, міністром закордонних справ України Володимиром Огризком, директором Українського інституту національної пам'яті Ігорем Юхновським та багатьма іншими високопосадовцями.

Президент України Віктор Андрійович Ющенко видав ряд указів, які сприяли перетворенню теми досліджень Голодомору 1932-1933 років в пріоритетну проблематику для досліджень українських вчених. Перша леді України Катерина Михайлівна Ющенко та Міжнародний фонд «Україна - 3000», який вона очолює, розгорнули масштабний проект із цього приводу, всіляко заохочуючи дослідницькі та журналістські праці в цьому напрямку. Кабінет Міністрів України вчасно і в повному обсязі профінансував всі заходи, пов'язані з роковинами 75-ї річниці Голодомору і пообіцяв українській діаспорі подальшу підтримку в цьому питанні.

Українською діаспорою тиражем 90 тисяч екземплярів були видані дві брошури про Голодомор 1932-1933 років для поширення в закордонній українській громаді та інформування іноземних державних осіб, політиків, громадськості і мас-медіа про жахливу трагедію українського народу. В багатьох державах були організовані виставки з нагоди цієї події. В США, Австралії і Канаді була проведена напружена робота задля включення в навчальні програми з історії та суспільних наук вивчення питання про Голодомор 1932-1933 років в Україні.

Були започатковані акції садження дерев та встановлення пам'ятних таблиць в українських церквах, народних домах та вулицях міст іноземних держав в пам'ять про жертви українського Голодомору. В Новій Зеландії, Австралії і Канаді видані поштові марки з нагоди 75-ї річниці Голодомору в Україні. В листопаді 2007 року члени МКК СКУ на чолі з Стефаном Романівим взяли участь у форумі ООН, закликавши ООН визнати Голодомор 1932-1933 років в Україні актом геноциду – злочином проти людства [5, С. 205].

Завдяки зусиллям української діаспори США 13 жовтня 2006 року Президент США Джордж Буш підписав закон про виділення ділянки федеральної землі у Вашингтоні для побудови пам'ятника жертвам Голодомору 1932-1933 років в Україні. Українська діаспора вже збрала гроші для побудови відповідного меморіалу [6, С. 295].

15 листопада 2008 року вулицями Нью-Йорка пройшла традиційна хода учасників акції на вшанування пам'яті жертв Голодомору в Україні 1932-1933 років, яка завершилася урочистим молебнем у Соборі Святого Патрика. В акції взяли участь провідники української громади, духовенство, представники четвертої хвилі української еміграції в США, місцеві американські прихожани, які

симпатизують Україні й побажали скласти шану мільйонам жертв комуністичного режиму. З урочистою промовою в соборі виступив давній друг України конгресмен Моріс Хінчі, який підкреслив навмисні дії Сталіна і його поплічників в організації цього терору голодом українського народу і висловив солідарність з українцями в річницю Голодомору-геноциду.

Голова Українського конгресового комітету Америки Тамара Гало-Олексій зачитала звернення президента США Джорджа Буша до українського народу з нагоди 75-х роковин Голодомору. Президент наймогутнішої країни світу, зокрема, підкреслив: «Я шлю свої вітання всім, хто вшановує 75-ті роковини Українського Голодомору. З цієї нагоди я приєднуюсь до моїх американських співвітчизників у поминанні цього злочину проти людства. Понад сім десятків років тому мільйони невинних українців були знищені голодом, коли сталінський режим навмисно спричинив руйнівний голод. Ця урочиста подія є нагодою згадати ці страшні події, пам'ятати про загиблих людей і підкреслити нашу відданість боротися з тиранією. Сьогодні вільний народ України робить свій внесок у просування свободи у світі. Сполучені Штати пишаються тим, що можуть звати Україну своїм другом, і ми продовжимо тримати солідарність з її народом. Я вдячний всім тим, хто шанує жертви Українського Голодомору. Завдяки вашим зусиллям ви нагадуєте всім нам про силу добра, яке торжествує над пільмою зла. Нехай Бог буде з усіма Вами» [7].

Посол України Олег Шамшур у своєму зверненні відзначив колосальні просвітницькі зусилля української громади та її американських друзів, особливо протягом останніх двох років, які сприяли поширенню інформації про Голодомор серед громадськості та політикуму США, що мобілізували увагу мешканців 24 американських міст. Він особливо відзначив роль Конгресу США, який у вересні прийняв чергову резолюцію, засудивши сталінські злочини в Україні.

Українською діаспорою була започаткована Міжнародна акція «Незгасима Свічка», метою якої було донести до світового співтовариства правду про Голодомор 1932-1933 років в Україні та домагатися визнати його актом геноциду проти української нації. У кожній з країн перебування символічної свічки повинні були проводитися заходи щодо вшанування пам'яті жертв Голодомору 1932-1933 років в Україні. Наголос в цій акції був зроблений на те, щоб передавати естафету від очевидців Голодомору українській молоді, від українців – іноземцям, єднати різні покоління, сприяючи зміцненню національної

свідомості в закордонних українських громадах. Це був спільний проект МКК СКУ та МЗС України. В кожній окремо взятій зарубіжній країні його спільно проводили організації української діаспори та посольство України [5, С. 205].

Акція «Незгасима Свічка» протягом 2008 року пройшла в квітні-травні в Австралії, Канаді, США; в червні-серпні – в Колумбії, Еквадорі, Перу, Бразилії, Парагваї, Аргентині, Чилі, Великобританії, Швеції, Естонії, Латвії, Литві, Білорусі, Польщі, Німеччині, Бельгії, Франції, Італії, Португалії; вересні-жовтні – в Італії, Сербії, Хорватії, Угорщині, Румунії, Молдові, Казахстані, Росії, Вірменії, Грузії. В серпні 2008 року світове українство урочисто вшанувало пам'ять жертв Голодомору 1932-1933 років під час проведення ІХ Конгресу СКУ в Києві за участі Президента України В.А. Ющенко і Прем'єр-міністра України Ю.В. Тимошенко, а також членів Кабінету Міністрів України та депутатів Верховної Ради України.

У рамках вшанування 75-х роковин Голодомору в Україні 22 листопада в Києві відбувся Міжнародний форум «Народ мій завжди буде!». У заході взяли участь Президент України Віктор Ющенко, Президенти Грузії Михаїл Саакашвілі, Латвійської Республіки - Валдіс Затлерс, Литовської Республіки - Валдас Адамкус, Республіки Польща - Лех Качинський. Всього на форумі були представлені делегації 44 держав світу, а також міжнародні організації - Європейський парламент, ЮНЕСКО, Парламентська асамблея Ради Європи.

Президент України Віктор Ющенко навів аргументи на користь того, що голод в Україні мав штучний характер і був спланованою політикою проти українських селян - найбільш самодостатньої верстви суспільства 1930-х років. Таким методом було безжально згублено мільйони невинних людей, половина з яких - діти. Одночасно винищувалася інтелігенція, письменники, науковці, вчителі, священники - усі, хто міг чинити найменший інтелектуальний опір. Понад те, комуністичний режим десятиліттями намагався вбити й саму пам'ять про них, учасників цієї трагедії.

«Голод був вибраний як знаряддя упокорення Українського народу. Метою було знекровити Україну, підірвати її сили і таким чином усунути можливість відновлення державності», - сказав Президент України [8].

Він відзначив, що тепер зусилля із донесення правди про цю трагедію української нації почуті світом. Від імені Української держави він висловив вдячність усім державам і міжнародним організаціям, які визнали Голодомор

1932-1933 років актом геноциду, засудили його як злочин проти людськості і вшанували мільйони невинних жертв. Президент також подякував усім церквам та релігійним громадам, які сьогодні разом з Україною. Особливо Віктор Ющенко подякував Вселенському патріархові Варфоломію I та Папі Римському Бенедикту XVI, які, вшановуючи пам'ять жертв Голодомору, разом із своїми вірними молитовно приєднуються до поминання невинно убієнних [8].

За словами Президента, Україна завжди буде вдячна Роберту Конквесту і Джеймсу Мейсу - американським дослідникам, які першими відкрили світові правду про Голодомор. Оцінюючи наслідки голоду для України, Президент назвав найголовнішим те, що як нація українці змогли вистояти у цій трагедії [8].

До Президента України надійшли листи від Президента США Дж. Буша, Новообраного президента США Барака Обами та Вселенського патріарха Варфоломія I з нагоди 75-ї річниці Голодомору 1932-1933 років. У листах висловлено солідарність з українським народом, який згадує про жертв Великого Голоду. Також з нагоди вшанування в Україні 75-х роковин Голодомору 1932-1933 рр. до українського народу з висловленням солідарності звернулися керівники багатьох країн світу. Зокрема надійшли звернення від Президента Ірландії Мері МакАліз, Президента Лівану Мішеля Сулеймана, Президента Парагваю Фернандо Луго Мендеса, Президента Фінляндії Тар'ї Халонен, Президента Чеської Республіки Вацлава Клауса, Президента Швейцарії Паскаля Кушпена, Віце-президента Аргентинської Республіки Хуліо Сесара Клето Кобоса, Прем'єр-міністра Іспанії Хосе Луїса Родрігеса Сапатеро, Міністра закордонних справ Австрії Урсули Пласнік, Державного секретаря у закордонних справах Співдружності Великої Британії Девіда Мілібенда [9].

Завдяки спільним зусиллям організацій української діаспори та МЗС України на парламентському рівні Голодомор в Україні актом геноциду українського народу був визнаний в Австралії, США, Канаді, Грузії, Естонії, Латвії, Литві. Польщі, Угорщині, Перу, Мексиці, Еквадорі, Колумбії, Парагваї, а також Ватикані. На регіональному та муніципальному рівні подібне рішення прийняли Бразилія, Іспанія, Аргентина та Італія [10, С. 217].

Висновки та рекомендації. Підсумовуючи все вищевказане, необхідно підкреслити, що органи влади нашої країни, організації української діаспори, наукові установи і громадськість України на міжнародному і загальнодержав-

ному рівні консолідовано розгорнули активну діяльність щодо висвітлення правди та увічнення пам'яті жертв Голодомору 1932-1933 років в Україні, приурочену до 75-ї річниці цієї жахливої трагедії українського народу. Згадана діяльність стала вагомим фактором вітчизняної державної гуманітарної політики. Вона призвела до підвищення позитивного міжнародного іміджу України та перетворення її на повноцінну учасницю європейського цивілізаційного простору XXI століття. Okремо потрібно підкреслити визначну роль тогочасних Президента України Віктора Ющенка та Першої леді України Катерини Ющенко в організації та повномасштабній державній підтримці заходів щодо висвітлення правди та увічнення пам'яті жертв Голодомору 1932-1933 років в Україні.

Рекомендації за результатами дослідження:

1. Рекомендувати Адміністрації Президента України, Кабінету Міністрів України, Верховній Раді України звернути увагу на дотримання громадянами України положень Закону України № 376-V "Про Голодомор 1932-1933 років в Україні".

2. Рекомендувати центральним органам влади України продовжувати заходи щодо висвітлення правди і увічнення пам'яті жертв Голодомору 1932-1933 років в Україні, зважаючи на те, що згадана проблематика є складовою вітчизняної історичної політики та важливим елементом гуманітарної політики України, здатним відчутно впливати як на українське суспільство, консолідуючи його, так і на іноземні держави.

3. Рекомендувати Міністерству закордонних справ України продовжувати активно співпрацювати з українською діаспорою в справі висвітлення правди і увічнення пам'яті жертв Голодомору 1932-1933 років в Україні, звернувши увагу на той факт, що висвітлення правди про Голодомор 1932-1933 років в Україні та представлення його актом геноциду українського народу було складовою національної ідеї української діаспори в країнах Заходу, яка дозволяла їй зберігати свою національну ідентичність, консолідуватися та продовжувати боротьбу за державну незалежність України, тобто будь-яке заперечення Голодомору 1932-1933 років закордонна українська громада буде оцінювати як факт здачі національних інтересів та зневагу до своїх зусиль щодо міжнародного визнання жахливої трагедії українського народу, що в свою чергу

приведе до погіршення міжнародного іміджу України та ускладнень в сфері реалізації закордонної політики нашої країни.

4. Рекомендувати Національній Академії Наук України, Інституту історії України НАН України, Інституту національної пам'яті продовжувати приділяти підвищену увагу дослідженню та висвітленню теми Голодомору 1932-1933 років в Україні.

5. Рекомендувати Президії Національної Академії Наук України створити академічний Інститут дослідження світового українства, Інституту історії України НАН України створити в системі інституту відділ дослідження історії української діаспори, зважаючи на активний вплив закордонного українства на процеси становлення і розбудови Української держави, зокрема, щодо дослідження, висвітлення правди і увічнення пам'яті жертв Голодомору 1932-1933 років в Україні.

6. Рекомендувати Міністерству освіти, науки, молоді та спорту України включити в програми з історії вищих і загальноосвітніх навчальних закладів докладне вивчення історії зарубіжних українців, зокрема їх зусиль, спрямованих на розбудову української державності, зокрема, щодо дослідження, висвітлення правди і увічнення пам'яті жертв Голодомору 1932-1933 років в Україні.

7. Рекомендувати Державному фонду фундаментальних досліджень забезпечити проведення конкурсів науково-дослідних проектів, тематично присвячених висвітленню теми Голодомору 1932-1933 років в Україні, в рамках гранту Президента України для молодих вчених підтримувати проекти, метою яких є вивчення процесів в середовищі закордонних українців, висвітлення боротьби української діаспори за демократію і незалежність України.

8. Рекомендувати Комітету з Державних премій при Президентові України під час розгляду наукових праць, висунутих на здобуття Державної премії України в галузі науки і техніки та Премії Президента України для молодих вчених, підтримувати наукові роботи, присвячені висвітленню теми Голодомору 1932-1933 років в Україні

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Yousuf Dheyaa Sultan,

Luhansk National Taras Shevchenko University,

Postgraduate Student, Department of Ukrainian

Philology and General Linguistics

Notional features of the concept DUTY in the English language world image

Юсуф Дхєя Султан,

Луганський національний університет імені Тараса Шевченка,

аспірант кафедри української філології та загального мовознавства

Понятійні ознаки концепту DUTY в англійській мовній картині світу

Поняття обов'язку є ключовим терміном будь-якої культури, має у будь-якій мові конкретну мовну реалізацію. Ядром концепту DUTY в англійській мові є понятійний компонент концепту, що формується за результатами аналізу лексикографічних джерел англійської мови, а периферією – образний компонент, що формується на основі аналізу застосування лексеми *duty* в англійській мовній картині світу. Пропонована розвідка є частиною комплексного лінгвістичного дослідження і має на меті виявити понятійні ознаки концепту DUTY в англійській мовній картині світу. Об'єктом дослідження слугують словникові статті лексеми *duty*, представлені у десятиох тлумачних словниках англійської мови.

У словнику *Oxford Advanced Learner's Dictionary of Current English* подано таке визначення лексеми *duty*: *duty* – 1) something that you feel you have to do because it is your moral or legal responsibility: *It is my duty to report it to the police; Local councilors have a duty to serve the community; I don't want you to visit me simply out of a sense of duty; your duties as a parent; to do your duty for your country*; 2) the work that is your job: *Report for duty at 8 a. m.*; 3) [pl.] tasks that are part of your job: *I spend a lot of my time on administrative duties; Your duties will*

include setting up a new computer system; 4) (on sth) a tax that you pay on things that you buy especially those that you bring into a country: *customs / excise / import duties; duty on wine and beer* [1].

Longman Dictionary of Contemporary English пропонує такі тлумачення досліджуваної лексеми: *duty* – 1) (sth you must do) something that you have to do because it is morally or legally right (*syn*: obligation): *I promise I will do my duty; We feel it is our duty to help her; Local authorities have a duty to keep the streets clean; You have a duty to your husband and to your children; She has a strong sense of moral duty; The unions have failed in their duty to female workers; In the traditional Hindu family, the son is duty-bound to look after his mother; Ian felt a sense of duty towards his parents; **have a duty to do something / be your duty to do something**: The company has a duty to its shareholders to accept the highest bid; As Christians it's our duty to help the less fortunate; **do your duty**: You must do your duty and report him to the police; **be in duty bound to do something** – have a duty to do something; 2) (work) something you have to do as part of your job or because of your social position: *Martin's duties included cleaning the cars; She works for her father doing part-time secretary duties; Your duties will also include coordinating secretarial support to the Head of Planning; He will soon be fit enough to carry out his duties (= do his job); He can only do light duties; medical / official etc. duties: Illness prevented her from carrying out her official duties; **report for duty** – go somewhere and officially say you are ready to work: Private Jones reporting for duty, Sir; When Juliet reported for duty (= arrived and said she was ready to start work) she was sent to check on a new patient; A teacher may be fired for neglect of duty (= failing to do his job properly); He did three tours of duty in Vietnam (= three periods working in a foreign country as a soldier, government officer etc.); 3) **be on / off duty** – to be working or not working at a particular time, especially when you are doing a job which people take turns to do, so that someone is always doing it: *He's on night duty; It was the same nurse who was on duty when you had your accident; Mary goes on duty (= starts working) tonight at half past ten; What time do you go off duty (= finish work)?* 4) (tax) a tax you pay on something you buy: *The duty on wine has gone up; the duty on cigarettes; customs duty (= tax paid on goods coming into the country); death duties, stamp duty;* 5) **do duty as / for something** – to be used as something (*syn*: serve as something): *The living room also does duty as a home office* [2].**

Webster's School Dictionary тлумачить лексему *duty* так: *duty* – 1) (respect) conduct due to parents and superiors; 2 a) the action required by one's position or occupation; 2 b) assigned service or business, especially active military service; 3 a) a moral or legal obligation; 3 b) the force or moral obligation: *obey the call of duty*; 4) tax, especially a tax on imports; 5) (use) the service required (as of a machine): *a drill designed to withstand heavy duty* [3].

У словнику *The Senior Dictionary. Dictionary of Canadian English* подано таке визначення лексеми *duty*: *duty* – 1) the thing that a person ought to do; something that is right to do: *It is your duty to obey the laws*; 2) the binding force of what is right: *A sense of duty makes a person do what he thinks is right*; 3) the thing that a person has to do in his work; action required by one's occupation or position: *A policeman's duties include enforcing the laws and arresting people who break them*; 4) (*respect, obedience*) the proper behavior owed to an older or superior person; 5) a tax on articles brought into or taken out of a country, made, sold, etc.; 6) a tax on the performance of certain transactions, the execution of various deeds and documents, etc.; 7) **do duty for** – serve in place of; 8) **in duty bound** – compelled to do something as a duty; 9) **off duty** – not at one's work or occupation; 10) **on duty** – at one's work or occupation. **Duty** applies to what a person ought to do because conscience, piety, or law demands it: *I have a duty to help my parents* [4].

New Webster's Dictionary and Thesaurus of the English Language визначає *duty* так: *duty* – (*syn*: accountability, allegiance, business, calling, charge, employment, function, obligation, office, province, responsibility, service, task; *ant*: betrayal, disloyalty, falsehood, inconstancy, irresponsibility) obligations of behavior or conduct in relation to others or to God which have a stronger claim on a person than his self-interest; the work someone is expected to do because of his vocation; the detailed content of this work: *the duties are not heavy*; payment due to the government for import, export, manufacture or sale of goods (*customs duties*), for transfer of property (*stamp duty*) or for legal recognition of documents etc.; (mech.) a machine's effectiveness measured as a ratio of work done to input energy: *a heavy-duty engine*; **to be on (off) duty** – to be retained by (free from) the duties of one's occupation; **to do duty for** (of an inferior substitute) – to be made to serve the same purpose as: *a straw mat did duty for a bed* [5].

Practical English Dictionary пропонує таке тлумачення досліджуваної лексеми: *duty* – what one ought to do, moral or legal obligations; office, function, being occupied in these; a tax on goods for the public revenue; respect [6].

Словарь современного английского языка визначає лексему *duty* так: *duty* – 1) something that one does either because it is part of one's job or because it is morally or legally right that one should do it: *His duties include taking letters to the post and making coffee; to do one's duty as a soldier; I feel it's my duty to help them; It's the duty of a lawyer to act in the best interests of his clients; I am in duty bound* (= forced by my conscience) *to visit my old aunt; he writes to his ex-employer once a year but he's only acting out of duty* (= not because he wants to); 2) any of various types of tax: *Customs duties* are paid on goods entering the country, *death duties* on property when their owner dies, and *stamp duty* when one sells a house; 3) **do duty for** (of things) – to (be able to) be used instead of: *This log will do duty for a table;* 4) **on / off duty** (especially of soldiers, nurses, etc.) – at / not at work: *When I am off duty I play tennis; I am on night-duty* (= working at night) *this week* [7].

Словарь активного усвоения лексики английского языка тлумачить лексему *duty* так: *duty* – 1) what one must do either because of one's job or because one thinks is right: *His duties include taking the letters to the post office and arranging meetings; to do one's duty; It's my duty to help you; duty bound* (= required by one's conscience) *to visit an old aunt;* 2) a tax: *Customs duties* are paid on goods entering the country and *death duties* on property when the owner dies; 3) **heavy duty** (as of a machine) – able to do hard work: *heavy duty tyres;* 4) **on / off duty** (especially of soldiers, nurses, etc.) – required / not required to work: *When I am off duty I play tennis* [8].

English – English Dictionary визначає досліджувану лексему так: *duty* – 1) behavior due to superior, deference, expression of respect; 2) payment to public revenue leveled on import, export, manufacture, or sale, of goods (Customs, excise, duties), transfer of property (death, probate, succession, stamp, duties), licenses, legal recognition of documents, etc. (duty is leveled on article or transaction, tax usually on persons); 3) moral or legal obligation, what one is bound or ought to do (*duty call* – a visit one would rather not but feels bound to pay); 4) binding force of what is right; 5) business, office, function, performance of or engagement in these (*on / off duty* – actually so engaged or not), performance of church services (*took my duty for me*); 6) (mech.) measure of engine's effectiveness in units of work done per

unit of fuel; 7) *do duty for* – serve or pass for (something else); *duty-paid / duty-free* – of goods on which customs or excise duties has been paid or is not leviable [9].

Англо-русский фразеологический словарь подає такі сталі вирази з лексемою *duty*: **do duty for something**: *David Macdonald made a movement of his head that did duty for an ominous shake; The enormous eyes behind the glasses had slowly swiveled round, and now there was a slow faint creasing of the face that did duty for a smile; in bounden duty (as in duty bound)*: *She made efforts to like them, as in duty bound, and as sisters of her future husband; But she only hurried off the faster, and Mr. Tapley followed as in duty bound; ones' bounden / sacred duty*: *Ames had taken a seat beside Carrie, and accordingly he felt it his bounden duty to pay her some attention* [10].

Аналіз словникових дефініцій лексеми *duty* дав можливість виявити 6 семем, які формують понятійну основу концепту DUTY в англійській мовній картині світу. Наявні в словниках понятійні ознаки марковано знаком „N+”, де N – кількість словників (з проаналізованих 10). Семема MORAL OR LEGAL OBLIGATION об'єднує 31 сему: *'the thing that a person ought to / must do'* (4+), *'moral or legal obligation'* (3+), *'business, function, office'* (3+), *'service'* (2+), *'responsibility'* (2+), *'obligation'* (2+), *'the binding force of what is right'* (2+), *'something that you have to do because it is morally or legally right'* (2+). Інші семи репрезентовано в одному з проаналізованих словників. Семема RESPECT об'єднує 6 сем: *'respect'* (4+), *'the proper behavior / conduct owed to parents, an older or superior person'* (3+), *'obedience'* (1+), *'deference'* (1+). Семема WORK об'єднує 11 сем: *'(work) something you have to do as part of your job or because of your social position'* (4+), *'the action required by one's position or occupation'* (2+), *'the work someone is expected to do because of his vocation / job; the detailed content of this work'* (2+), *'tasks that are part of your job'* (2+). Інші семи репрезентовано в одному з проаналізованих словників. Семема TAX об'єднує 18 сем: *'a tax that you pay on things that you buy especially those that you bring into a country'* (9+), *'customs / excise / import duties'* (4+), *'a tax on articles taken out of a country, made, sold, etc.'* (3+), *'a tax on the performance of certain transactions, the execution of various deeds and documents, etc.'* (3+). Інші семи репрезентовано в одному з проаналізованих словників. Також серед понятійних ознак досліджуваного концепту наявні семи / семеми *'to be used / serve as something'* (6+) та *'a machine's effectiveness measured as a ratio of work done to input energy'* (3+).

Плідним для подальших студій вважаємо аналіз словникових статей лексеми *obligation*, що значно розширить та уточнить понятійну структуру досліджуваного нами концепту.

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Yakov Lensu,

Belarusian State Academy of Arts,

Ph.D. in History of Arts, Associate Professor,

Head of the Department of Theory and History of Design

National and international in the contemporary industrial design

Яков Ленсу,

Белорусская государственная академия искусств,

кандидат искусствоведения, доцент,

заведующий кафедрой теории и истории дизайна

Национальное и интернациональное в современном промышленном дизайне

Современный промышленный дизайн – порождение массового индустриального производства, которое в принципе «космополитично», поэтому внешние формы объектов современного дизайна имеют в основном ярко выраженный интернациональный характер. Однако, несмотря на это, и сегодня формам объектов предметного мира зачастую свойственны определенные национальные черты. Но проявляются они не поверхностно, а в некой глубинной сущности объектов, можно сказать, внутренней одухотворенности. Это связано с тем, что, как отмечает О. В. Чернышев, «...в качестве основного предмета дизайн-деятельности и ее конечных целей теперь должны выступать не только и не столько эстетическое осмысление и функционально-техническое совершенствование искусственных систем ... сколько конкретное бытие человеческой личности во всем богатстве ее существенных проявлений (духовная культура, социальная активность, творческий потенциал и т.п.)» [1, с. 33].

Цель данной статьи – выявить, чем определяется соотношение интернационального и национального в современном дизайне, и каково значение

подобного интегрирующего свойства дизайна для развития современной материально-художественной культуры?

Вначале определим факторы, влиявшие в прошлом на формирование национальных особенностей предметного мира. Во-первых, с давних времен на формы вещной среды воздействовала специфика природных условий обитания данной нации или народности. Во-вторых, надо отметить влияние на предметное формообразование особенностей национального характера народа и его национальной культуры.

Теперь обратимся к современному предметному миру. Произшедшая в течение позапрошлого века замена кустарного ремесленного способа производства массовым промышленным вызвала потребность новых форм. Если формы ремесленных уникальных изделий, создаваемые конкретным человеком, выражали сущность индивидуального творчества, в том числе и особенности мироощущения мастера как представителя определенной нации, то новые промышленные формы отражали сущность массового машинного производства, сущность машинной технологии. Промышленная же технология сама по себе лишена каких-либо национальных признаков, она космополитична. Эта космополитичность промышленного способа производства выразилась и в космополитичности промышленных форм изготавливаемых предметов.

Однако, наряду с тем, что промышленные формы стали выражением объективных требований технологии, в процессе их создания неизбежно присутствовал субъективный человеческий фактор, человек-проектировщик со своими индивидуальными особенностями, с определенным мировоззрением, обусловленным особенностями национальной среды, его породившей. «Для многообразия одинаково экономичных решений (а для исходной строительной задачи их существует большое количество), – отмечал В. Гропиус, – творчески работающий художник в пределах ограничений, диктуемых его эпохой, выбирает нужное ему решение исходя из личного восприятия» [2, с. 56-57]. Поэтому факторы, которые действовали во времена господства кустарного производства и вели к проявлению национальных особенностей в предметном формообразовании, в известной степени продолжают действовать и теперь.

Безусловно, зависимость человека от природы, которая существовала на ранних этапах его развития, со временем ослабевает. Сегодня контакт человека с природой средой намного меньше, чем в древности, теперь люди боль-

ше имеют отношения с объектами «второй природы», созданными ими самими, с искусственным миром вещей. Увеличивается количество вещей, которые окружают человека, увеличивается количество предметных форм. Теперь при формообразовании человек уже опирается не столько на природные, сколько на предметные формы, созданные им самим. Форма автомобиля родилась на основе формы кареты, форма пишущей машинки – на основе формы фортепиано, форма холодильника – на основе формы шкафа и т.д. Трансформация искусственных форм при предметном формообразовании в настоящее время явно доминирует. Таким образом, один из важнейших факторов, определявших национальные особенности предметного мира, – влияние специфики природной среды, – сегодня явно ослаблен. Однако это не значит, что его действие совершенно прекратилось. Даже живя в большом промышленном городе, человек и сегодня не изолирован от природы родного края, и ее формы, ее общий образный строй не может не оказывать определенного воздействия на сознание человека, творящего вторую природу – вещную среду. Дизайнер остается художником, а художник живет в мире образов, и в этом образном мире немалое место принадлежит природе родного края, т.е. окружающей природной среде. Замечательный бразильский архитектор Оскар Нимейер говорил, что его учили линии гор. «... архитектор в своей работе, – писал он, – всегда призван отразить ту среду, в которой она создавалась» [3, с. 136]. А не леса ли Финляндии учили великого финского дизайнера Алвара Аалто? Не мягкая ли, живописная природа Италии учила Марио Беллини и Этторе Соттсасса?

Сохраняется сегодня также влияние на предметный мир особенностей национального характера и национальной культуры. Безусловно, сейчас в мире наблюдается определенное сближение культур, сближение обычаев, привычек людей разных национальностей, проявляется созвучие в области культуры разных народов, что, однако, отнюдь не означает исчезновения специфики национальных культур, а, напротив, их обогащение и расцвет. Все это отражается в дизайне, потому что предметная форма идет не только от функции и конструкции, но также и от тех относительно устойчивых психологических и социальных стереотипов, которые обычно связываются у разных народов с той или иной предметной формой. Черты современного дизайна разных народов, связанные со спецификой национальной культуры, с особенностями нацио-

нального характера, продолжают традиционные черты предметного формообразования этих народов, отражая преемственность в национальной культуре, относительную независимость национальных характеров.

Прекрасным примером такой преемственности национальных традиций может служить финский дизайн. В 1930-е годы, когда в Финляндии начинались интенсивные процессы по формированию национального дизайна, в экономике этой страны сложилась следующая картина. Финляндия обладает сравнительно небогатыми природными ресурсами, индустриализация здесь началась в довольно позднее время, в производстве использовались в основном простые материалы и технологии. Все это обусловило сложение в сознании финского общества так называемой «идеологии недостаточности» и «традиции к самообеспечению». Финны в своем материальном производстве как бы замкнулись сами в себе, пытаясь решать свои проблемы, максимально используя собственные внутренние ресурсы. Это логично привело финских дизайнеров к использованию в своем творчестве национальных народных традиций предметного формообразования.

Для изделий финских народных мастеров было характерно доминирование простых и практичных форм, добротность и долговечность изделий, рациональное использование материалов, связь предметных форм с формами природы, скупость использования декора и цвета. Все эти черты стали присущи финскому промышленному дизайну.

Характерной чертой финского дизайна было также то, что использовались традиции народных ремесел не только в формообразовании, но и в технологии. Ярчайшим примером могут служить эксперименты с гнутым деревом уже упоминавшегося выше Алвара Аалто. Он использовал и творчески переработал старинную народную технологию, которая практиковалась при изготовлении лыж и лодок. В результате, опираясь на традиционную технологию, дизайнер стал создавать оригинальные, совершенные по форме образцы современной мебели. Вот это единство традиций и новаторства, выход в новые, современные формы, исходя из древних традиций, органически присущи финскому дизайну, что и создает его неповторимость, своеобразие и в то же время ощущение вечности, вневременности его форм.

Неотъемлемой чертой финского дизайна является также тесная связь его форм с формами природы, что также почерпнуто дизайнерами Финляндии из

традиционного народного предметного формообразования. Созданные промышленным способом, формы финских изделий не производят впечатления холодных, немых продуктов индустриального производства, они теплые и челоечные, как объекты окружающей человека природы, как изделия народных мастеров, которые так близки были к гармоничным формам природы.

Именно благодаря такой глубокой связи с древними народными традициями финский дизайн стал интегральной частью национальной культуры народа Финляндии. Существует даже мнение, что именно в творчестве своих выдающихся дизайнеров финны нашли свое национальное самовыражение.

Таким образом, выявляя в формах предметного мира интернациональные начала, связанные со спецификой массового промышленного производства, дизайнер все же вносит в визуальные формы вещной среды определенные национальные особенности, некую внутреннюю национальную одухотворенность. И, как уже говорилось, эти национальные особенности объектов современного дизайна проявляются на фоне усиления интернациональных черт в формах предметного мира, создаваемого массовым промышленным производством. Однако возрастающее сегодня в предметном формообразовании нивелирующее промышленное начало не является шагом назад. Массовый промышленный способ производства дал толчок прогрессу и в дизайне: проектировщики-дизайнеры стали искать пути выявления в предметных формах их интернациональной функциональной основы. И в этом с большой силой начала проявляться важная интегрирующая роль дизайна в современном мире, дизайн, таким образом, стал выявлять в предметном мире то общее, что присуще людям, раскрывать общечеловеческие основы общения людей с предметной средой. Сегодня единение национальных качеств дизайна с его интернациональной направленностью открывает путь к широкой интеграции национальных культур наряду с сохранением и развитием их национальных черт. Предметы, созданные в разных странах и обладающие своими национальными особенностями, благодаря их интернациональной направленности, могут органически входить в культуру, в быт любого народа. Эта возможность объектов современного дизайна является значительным шагом к единению национальных культур, к созданию единой общечеловеческой материально-художественной культуры.

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Kaarina Määttä, Anne Koski-Heikkinen, Satu Uusiautti,
Faculty of Education, University of Lapland, Finland,
Kainuu Vocational College, Kuusamo, Finland

Ideal Teacherhood in Vocational Education

1. INTRODUCTION

The core goal of vocational education is to provide vocational education students with good professional expertise. Vocational education teachers (VET) introduce necessary skills and knowledge to be learned in a form that students can learn and practice [1]. These skills and knowledge support their learning processes and motivate them to enter work life. VETs are expected to create quality learning environments and guarantee excellent learning results. In addition, VETs have to update their knowledge and skills constantly as well as to renew professionally, personally, and communally. VETs interact not only with diverse students but also with other personnel and rapidly changing work life. Along with these goals, it is possible to refer to the ideal teaching in vocational education and to the concept of a good teacher. Uusiautti and Määttä [2] state that it is not possible to define strictly the criterion of a good teacher — ideal teacherhood in this case — but a teacher is always a unique personality. Personality is a teacher’s essential tool [2], which means that development toward ideal teacherhood mean somewhat the same as development toward a good personality [3].

Notwithstanding, it has been questioned whether the essence of good teacherhood can be even defined [4]. Conceptions are contradictory [5,6], nor is it always that straightforward to list the factors of good teacherhood [2,7].

Still, attempts to create definitions of good or ideal teacherhood are abundant. Teachers’ continuous and determined self-development and commitment to the personal and professional growth make the prerequisites for the development of good personality [1,8]. Renewal and personal growth necessitate also redefinitions of one’s professional identity including reflection of one’s self at work and in free time as well as evaluation of one’s values, dreams, and commitments [9]. Resulting positive conception of oneself as a skillful expert and developing individual lays the foundation of a good professional identity [10,11,12]. Likewise, the definition of good teacherhood is necessary in vocational education. Next we will discuss the challenges of and possible outlines of such a definition. The purpose is to analyze how VETs themselves perceive ideal teacherhood in vocational education.

2. THE DIFFICULTY OF DEFINING IDEAL TEACHERHOOD IN VOCATIONAL EDUCATION

Constant change is an essential part of VETs' work. Because of this, the definition of ideal teacherhood in vocational education seems unreachable. In Finland, the reform of curricula in vocational education brought new challenges in VET's work [13]. Likewise, new conceptions of learning, more and more diverse student groups, and new teaching arrangements have changed VET qualifications [14]. Students are still seen as the core of VET's work, but instead of education and teaching, current conception of learning emphasize more guidance of learning and learning processes [15,16].

Various organs of society target expectations and pressure to teachers' work. Teachers should be simultaneously supporters of holistic psychological and physical development, collaborators who are equipped with exquisite interaction skills, users of the latest technological innovations and social media who can renew their teaching and search actively new information, as well as, first and foremost, societal contributors and activists [17].

VETs have to enhance students learning processes by organizing various learning situations in diversified and updated learning environments that resemble actual work situations, methods, and places. Almost every student group includes students with special needs, which means that teachers must be able to design individualized study paths for each student [18]. Work with students with profound and multiple learning difficulties reflects on teachers' professional identities as well [19]. VETs are expected to be familiar with the latest societal and work-life changes and the related influence on qualification requirements. A teacher's role in relation to students involves more than ever education about the roles of society and guidance of study processes [20,21,22].

Along with new learning environments arrangements of workplace learning periods necessitates that VETs possess specific familiarity with society, work life, and business life as well as active and developmental cooperation with these instances [23,24,25]. Multiprofessional cooperation also makes a more salient part of VETs' work [26]. Due to VETs' multisided work description, the limits of a teacher's role have been questioned: "When is a teacher not a teacher?" [27]. Where are the limits of a teacher's qualifications is an essential question when defining ideal teacherhood and reflecting on its relationship with the reality of teaching in practice. VETs' work can include the requirement of ideal activity and ideal teacherhood [28].

Ideal teacherhood has been greatly studied in the light of different students' opinions [29,30,31,32]. For example, student teachers have been asked to compare themselves with their conception of ideal teacherhood [33]. Indeed, differences between students' and teachers' opinions have raised interest already for a long time [34], and there are studies analyzing how concepts of “ideal student” and “ideal teacher” are connected to each other [35], how ideal teacherhood contributes to teacher effectiveness [36], and the relationship between teachers and students [37].

However, ideal teacherhood in vocational education has not been widely studied. This study aimed to contribute to this gap in knowledge. We wanted to analyze what ideal teacherhood consists of in vocational education in the first place according to VETs' perceptions. This viewpoint was chosen because VETs' own conceptions have not been profoundly analyzed thus far.

3. VOCATIONAL EDUCATION TEACHER'S IDENTITY

Ideal teacherhood in vocational education is connected with a teacher's identity. Our previous study analyzed VET's identity [38] revealing that it consists of four areas:

(1) Substance knowledge, including the know-how of VET's professional field, professional expertise, and work-specific skills.

Teachers are traditionally perceived as subject matter experts. Knowledge of subject matter has always been the core feature of a good teacher [39]. However, instead of distribution of information, today's teachers are merely expected to handle transmission of knowledge. Moreover, evaluation of information and skills is important in these days. In addition, professional expertise has to be updated constantly, and the readiness to professional change and development has to be provided already in vocational basic education.

(2) Pedagogical expertise, including the ability to lead teaching, learning, and study processes, organize and analyze teaching situations, and encounter and guide students.

Although technology and teaching methods develop all the time, teachers' personal inputs still matter. It is especially apparent in the pedagogical, ethical, and moral dimensions of teaching. Pedagogical expertise is a combination of many knowledge and skills related to student interaction and how they are applied in the practical complexity of teaching situations [2].

(3) Work-life skills, including co-operation skills, willingness to create networks, ability to work in various teams, and economic and administration skills.

VETs work in collaboration with colleagues in the college and with employers and other representatives of the professional field. VETs function as mediators between vocational education students and work-life professionals.

(4) Developmental abilities, ability and will to develop one's mastery over the knowledge and skills in one's vocational field, participate in the development of one's field and work life, and trust in the progress of vocational development through teaching and learning processes.

Due to the professional change and variation, VETs are required to possess such knowledge and teaching skills that helps vocational education students adjust to the day's professional expectations. VETs are expected to work for and influence the appreciation of their vocational field.

The classification of professional identity in many ways reminds earlier illustrations of a teacher's professional identity [40,41,42,43,44]. Our research was focused on less studied teachers: VETs' perceptions have not been studied much compared to, for example, elementary school teachers. However, their work differs greatly from other teachers' work.

In this study, we continue our analysis of VETs' perceptions of their work. The focus is especially on their ideas about ideal teacherhood and its connection with professional identity.

4. METHODS

The purpose of this study is to describe VETs' understanding about ideal teacherhood in vocational education. At the same time, the goal is to analyze how VETs try to develop professionally and how ideal teacherhood is connected with professional identity. The following research questions were set for this study:

(1) How does ideal teacherhood in vocational education appear according to VETs' descriptions?

(2) How is ideal teacherhood in vocational education connected to professional identity according to VETs' perceptions?

In this study, twelve Finnish VETs were recruited from one vocational education college with multiple fields. The request to participate in the study were sent to all 28 VETs in this college. The teachers had the following questions to help them to create their narratives: (1) How long you have worked as a VET and how old are you now?; (2) How did you end up in a VET's profession?; (3) How did you develop as a VET of this kind that you are today?; (4) What were you like at the beginning of your career and how are you today as a teacher?; (5) What kind of a

teacher would you like to become?; and (6) What would you like to achieve in your teacher's career?

The teachers were asked to either write their narratives or record them with a digital recorder that the researcher would transcribe afterwards. The data obtained included oral (N=5) and written (N=7) narratives. The narrative research approach was chosen to study VETs' perceptions of ideal teacherhood in vocational education. The approach was considered suitable because of its context-bound, personal, and subjective nature. In this kind of research, the power is given from the researcher to the research participant [45]. The narrative research approach simply refers to analysis of narratives told by people [46].

The concept of narrative defines narrative analysis [47]. The analysis of narratives means that situations and events, people's characteristics and other elements in narratives are categorized into themes and types. In this study, the purpose was to analyze how ideal teacherhood appears in VETs' narratives and what kinds of themes and types emerge from the data. The narrative analysis pursues constructing a new narrative that is based on the original narrative data [48] – a description of ideal teacherhood in this case. According to Polkinghorne, a result of the narrative analysis is a time-bound, structured, and plotted entity with a conclusion [47]. This kind of meta-narrative reveal various parts of the data and their confluences.

The data analysis was based on the qualitative data, twelve narratives that were categorized with the analysis of narratives and combined as conclusions with the narrative analysis [49]. The analysis of narratives means categorizing based on types, metaphors, or classes [50]. Marjatta Saarnivaara [51] pointed out that, in narrative research, description can be seen as the foundation of the construction of narratives. Description can be widened and specified with analysis. In this study, categorization followed the idea of the analysis of narratives pursuing the identification of key factors and their interconnectedness [49]. In this sense, the analysis was data-based, which means that the themes emerging in the data were analyzed and reduced as the categories introduced as results. According to Jerome Bruner [52], paradigmatic knowledge is typically rigorous and formal, and produces argumentation that follows from logical statements and careful definition of concepts and categories.

In narrative research like this one, the reliability and validity of the data are worth discussing. Transferability criterion refers to sufficient detail of the context and

whether the findings can justifiably be applied to the other setting [53]. In this study, VETs presented various occupational fields and therefore, their descriptions of professional identity covered vocational education teacherhood widely. The meeting of the dependability criterion is difficult in qualitative work in general because the research themes and data are often impossible to repeat [53].

Careful description of the select methods and data obtained strengthen the dependability and trustworthiness of the study [53]. The narrative method seemed to suit extremely well to the research on teachers' professional development and identity: teachers create and construct their identities by talking, interpreting, and reflecting their experiences and opinions, which can be seen the foundation of their perceptions of ideal teacherhood as well [54,55].

5. RESULTS

5.1 The Possibility of Ideal Teacherhood

When defining ideal teacherhood in vocational education, VETs answered to the question of what they set their sights on as teachers, what kind of teachers they would like to be, and what is important in teacherhood. Many VETs described their insecurity and mistakes taking place at the beginning of their teacher careers. This has been noted by earlier research as well [56,57,58]. The VETs in this study also talked about their pursuit of being a perfect teacher. VETs reflected on their unrealistic goals quite aptly:

I made plenty of mistakes. I tried to be a strict, assertive buddy, and this caused the conflicts with the adolescent students... - You have to be an honest personality (7).

In general, VETs seemed to become able to reflect on the possibility of reaching ideal teacherhood more realistically after they had gained practical experience of a VET's work:

Experience makes you strong. Experience has made me into what I am today (5).

Teaching necessitates constant reflection [9]. Likewise, the data in this study showed that ideal teacherhood seemed to arise from evaluations between oneself and professional and communal factors influencing teaching (see also [59,60]). As the VETs developed their individual personality as teachers and could strengthen their professional identity, they started to accept themselves as they were. This provided them with strength to work as personalities which meant that they had to give up on the preconceived, perhaps unrealistic, role of an ideal teacher and have courage to indulge in teaching situations as themselves.

My teaching style is quite colorful. But now I dare to be myself! (4).

Following one's own path is not easy nor can any teacher avoid new challenges and learning or new goals. The uncertain future of professions fester many VETs' minds, but still they want to do teaching well.

I am more like a coach, expert, educator, and some guide who shows various opportunities that are reasonable for the youth (6).

My dream is to work with balanced and nice youngsters who are highly motivated to learn a profession for themselves (9).

The heterogeneous student material sets pressure for the pursuit of ideal teacherhood in vocational education. Many VETs learned to understand that not all students aim at the top in their field but students' goals and readiness are extremely variable.

The fact that you have more and more difficult students and their life situations are hard. So, you always have a feeling that, in addition to being able to provide them with right kind of teaching for work life, I should be able to give them good guidelines in life (4).

5.2 The Features of Ideal Teacherhood in Vocational Education

The conception of ideal teacherhood turned into a more realistic one as the VETs' work experience increased. The idealistic ideas from the beginning of their careers became more practice-based and turned into fields of expertise guiding their work and illustrating their core know-how. Ideal teacherhood in vocational education occurred in the VETs' descriptions through six features.

5.2.1 Mastery of one's professional field and ability to act as a reformer

VETs' own experiences and learning about the profession can function as students' support, especially when it comes to the acquisition of good professional skills and knowledge. Mastery of one's professional field means that the VET knows the nodes and critical points as well as the phases of professional development.

You have to keep updated all the time, and that is hard for sure. In our field, the technology develops so fast, that you really have to work hard to keep in the picture (7).

The purpose is to widen my own expertise. Then I will have more information to distribute to students and more opportunities to realize practical teaching (11).

Along with their profound mastery of the profession and teaching it to students, VETs influence the renewal of professions and enhance students' readiness for life-long learning.

And I think that I will never be ready as a person, and therefore, I cannot become ready as teacher either. As I grow as a person, I also develop as a teacher. - You always have to keep up the profession by developing the professional side. And you cannot become a master in that either. You mature as a human being (4).

5.2.2 All-round pedagogical expertise

Ideal VETs know different teaching methods, are able to plan and be flexible in teaching situations according to students' needs, and give room to individuals and various students' learning abilities. Evaluation at its best can also enhance students' learning motivation.

I would like to develop and know more all the time. I do follow my profession a lot and I like this field and these subjects I teach. And I would like to study, too, in the future (5).

I would like to develop into a better expert, for example, of learning difficulties and to encounter the youth with problems (9).

5.2.3 Networking and collaboration

Ideal VETs can develop professional expertise and students' careers by creating connections with work life. Networks and multi-professionalism necessitate cooperation, and so does the updating of vocational education. Electronic communication, real-time flow of information, and internationalization also demand new forms of cooperation.

...independent and autonomous teacher's work has more and more changed into cooperation and team work. Teachers have to be able to adjust their teaching and especially evaluations within predetermined dates... mastery over ICT and various registers and follow-up systems, as well as cooperation and interaction skills (12).

5.2.4 Encouragement and support for students

With even the smallest gestures, VETs can help students to achieve the greatest results — a few words of encouragement can be enough. Teachers'

ability to encourage students is also self-enhancing because it strengthens teachers' contentment with their ability to guide, teach, and support.

...teaching is not the most important thing but learning... I would like to be a VET who never gets into a rut. I would like to develop all the time and know more. I would think that I could transmit this field so that students could construct their professional identities in their own way... (5).

5.2.5 Fostering of justice and equity, bearing responsibility

VETs are responsible for distributing information, support, and guidance to all vocational education students concerning their study processes and goals, and the contents to be studied. The ultimate goal is to make each and every student feel welcome to education regardless of various background factors, learning histories, and study abilities.

You have to be extremely fair with them but simultaneously very differentiating as well. VETs' work requires high physical and mental shape (8).

5.2.6 Positive basic values and ability to act as a bellwether

Teachers can teach students about necessary life skills, resources, strengths and values, as well as attitudes toward oneself, work, and other people. VETs can become irreplaceable and primary models, idols, or bellwethers to their students. Their teaching can show the direction in life or encourage to find one's own goals for studies and life in general.

...if only you could have the student understand what is best for him or her, why to do this job and study. And why to put one's heart in this job. To become a teacher who inspires them. Or they could fear a little, but not too much, not too frightened to enter. To find a balance in this work, so that it would not become too flaccid (10).

To find success in life, students need to learn about, for example, diligence, joy, good manners, politeness, modesty, and taking care about the basics in life:

...take care that your clothes are clean, do not use dirty language and behave well, and do not drink during the weekend, and try to foster your good reputation as the prospective professionals in the field, and teach how to eat healthy, and everything that I as a parent have done with my own children (4).

5.3 The Connection between Ideal Teacherhood in Vocational Education and Professional Identity

In this study, VETs referred to two professional identity selves when talking about ideal teacherhood in vocational education. These identities are interconnected but can also be viewed separately. They are professional self and personal self (cf. [38,59,61,62]). In Results section 5.2, three first mentioned features represent professional self and three last mentioned belong to personal self.

VETs develop their professional identities and construct their conception of ideal teacherhood in vocational education during their whole careers through reflecting on these two selves in professional identity. Teachers reflect on their experiences of acting as a teacher and compare them with their personal selves and conceptions of their inner beliefs, ethicality, and values.

It is like two different people fighting (6). Reflection helps VETs to form a conception of their professional identity and themselves as ideal VETs: who am I and what am I like as a VET and what do I want to accomplish in this profession. The professional and personal selves in professional identity are in constant, even demanding, dialogue over how to work ideally, how an ideal VET behaves in the first place, what kind of substance knowledge is appreciated and how to develop and update it, what kinds of pedagogical solutions are made in teaching situations, and how to act and participate in the developmental work at the workplace.

Mostly work seems to be guided by the professional self, which may not necessarily represent the true, realistic, and relevant guide for teaching work but merely an ideal image of a VET with unrealistic demands. However, it seems that the personal self, along with a VET's age and work experience, tries to balance between idealistic demands with encouraging, practice-based thoughts.

At the beginning, I used to take everything really personally, and students' all actions were like I had did them. I worried so much about students' problems and perceived them even too close. This year I have consciously tried to get rid of this feature but I always have to remind myself about it. I am a demanding teacher, strict too when necessary, but still I try to establish a relationship with students that makes the study atmosphere relaxed and active (9).

Along with time, the personal self helps VETs to act as genuine personalities at work and to accept the incompleteness. This means that VETs understand that

it is impossible to reach ideal teacherhood in vocational education, but it is important to pursue toward it.

Nowadays, I can speak openly like this. Is it because of my age or profession? (10).

Sometimes, the professional self functions as a sort of shield in a VET's work. On the one hand, it can regulate a VET's behavior so that the teacher does not bring out his or her characteristics, values, or convictions that do not fit in the vocational education context in general. On the other hand, the professional self can help the VET to cope when the work feels overwhelmingly busy, tiring, or mere monotonous toil.

6. DISCUSSION

The study showed how VETs found it difficult to describe ideal teacherhood in vocational education at first [63,64], but eventually they connected it with explicit work-related expectations, successful solutions, and goals. Ideal teacherhood in vocational education was also closely connected with a teacher's professional and personal identities. The aforementioned features of ideal teacherhood in vocational education can also be considered as the manifestations of professional and personal self in professional identity. Therefore, the ideal professional self consists of the mastery of one's professional field and ability to renew it, versatile pedagogical skills, and networking and cooperation skills. Personal self consists of students' encouragement and supporting skills, equality and justice as well as responsibility in teaching, and good basic values and bellwether's role as a teacher. This connection is illustrated in Fig. 1. It shows how the professional self and personal self are interconnected, and ideal teacherhood in vocational education is located in their borderline. When in balance, the emergence of or pursuit toward ideal teacherhood in vocational education is possible.

For VETs, this illustration contributes information about ideal teacherhood from many perspectives. First, when it comes to teachers themselves, the role of professional identity has a great emphasis in VETs' work. They are not only teachers but also experts in their own vocational fields. Therefore, their identity includes elements that, for example, teachers in general education do not necessarily possess. Nevertheless, VETs are teachers too, who, in order to be good teachers, must use their personality as a part of their work.

Second, VET characteristics make a salient part of ideal teacherhood. The combination of these identity dimensions is relevant to realize when dissecting the development of professional identity in VETs. In this study, the research participants were VETs from various occupational fields. Therefore, the illustration in Fig. 1 is not limited to just one field of vocational education but covers various fields: each profession has its own specific features related to a VET's professional self that must be considered when analyzing ideal teacherhood.

Third, this study was based in Finland where vocational education has increased its popularity among the youth having finished compulsory education. Therefore, it is more and more important to focus on ways to enhance the development of teacherhood in vocational education. The new interest in vocational education necessitates thorough understanding about the importance of proper professional identity in VETs, but as teachers in all education levels, personal identities as teachers should not be overlooked either. This viewpoint contributes to the discussion of future development of VETs' work and education not only in Finland but also abroad.

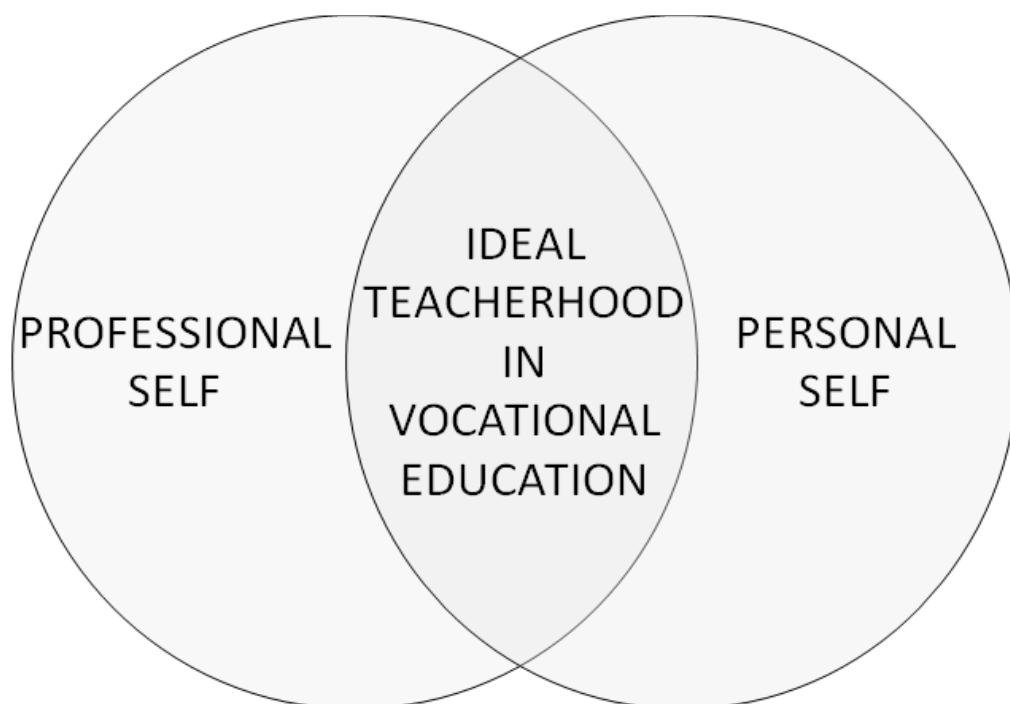


Fig. 1. Ideal teacherhood in vocational education and teacher identity

7. CONCLUSION

Meaningful work is the source of human well-being [65]. This study showed that identity reflection makes a salient part of VETs' perceived well-being at work [66,67]. The development toward ideal teacherhood in vocational education happens through each teacher's personal reflection including the shift from the dominating professional self to the flourish of personal self and, finally, toward the balance between them. Perhaps, ideal teacherhood in vocational education lies not so much in teachers' outer performances but intrinsic reflection and balance. This does not mean that they would need excellent work-life skills, knowledge, and networks in their special fields, but, when acquired, they make a salient part of their well-constructed professional identity [68]. Eventually, teachers, who are in the first name terms with their vocational education teacher identity, can act as bellwethers and true developers of their fields. They are inspiring and motivating teachers who, due to their expertise, enhance students' learning and are able to educate future experts for the needs of work life.

Therefore, VETs' work includes a distinct ethical dimension. This study showed how VETs' perceptions of the realities of the profession and ideal teacherhood emphasize the ethical side of the work. Teachers' work in general is focused on significant phases and situations in people's lives [69,70,71]. According to Elena Seghedini [72], teachers' ethical action in teaching develops alongside the development of professional expertise and vice versa: professional expertise develops also through ethical action. In Finland, Emmi Enlund, Mari Luokkanen, and Taru Feldt [73] studied teachers' ethical burden and ethical dilemma, and ended up recommending that education institutions should utilize the ethical guidelines composed by trade unions. They would support teachers' work. Common models to help teachers' action in problematic situations could be created based on the guidelines, which would provide teachers with collective certainty in ethical considerations. Williamson McDiarmid and Mary Clevenger-Bright [74] point out that teachers' work and professional development are closely tied in the wider society. According to Kirsi Tirri [75], expertise in teachers' work develops through education and experience and includes freedom and, first and foremost, responsibility to act in the profession.

Indeed, a well-balanced teacher identity and core values are the sources of stability and sense of purpose for teachers [76]. This viewpoint contributes also to

the current discussion of stress and coping as well as the sense of self-efficacy in teachers [77,78,79,80]. For example, studies about perceived level of self-efficacy have proven to be the core dimension of preventing and treating teachers' stress [81]. When considering the findings from the point of view of ideal teacherhood, it seems relevant to suggest that a successful identity development and a positive conception of oneself as a VET contributes to the sense of self-efficacy at work and respectively to one's well-being at work as well. These kind of perspectives appear of increasing importance in today's rapidly changing work in all occupational fields, including that of VETs.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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