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Learning - the Israeli Way: Key Educational Experiences and Classroom Noise

ABSTRACT

Aims: The present study exposes that meaningful learning experiences in Israeli schools take place in noisy and highly active classrooms. In contrast to common assumptions, we show that significant learning takes place in "active" classrooms, where "activity" reflects students' enthusiasm, curiosity and interest.

Place and Duration of Study: The study took place in Israel and collected evidence along three years.

Study Design: The study used a convenience sample of adults who reported about their strongest educational experiences in life. The sample proved representative of Israeli high school populations. The present article is based on the analysis of 483 retrospective key educational experiences that adults had during their school days.

Methodology: We used interpretive methods to analyze major themes and patterns but also coded experiences in order to assess the quantitative ecology of "noisy" experiences in school.

Results: A thematic qualitative analysis of the episodes shows that key educational experiences occurred when the content of instruction was authentic, relevant and challenging. Key experiences also reflected teachers' use of competitions, instructional peaks, varied skills employed in research projects, free choice of activity, presentations in front of an audience, and the use of surprises in learning. The article shows that many experiences took place on field trips, while others transpired during what seemed like ordinary frontal, teacher-centered instruction. Overall, these key educational experiences reflect the "deviance" of individual teachers from patterned instructional programs and students' "chaotic-like" beha-

vivors during the pre-planned school schedule. During key educational experiences the teachers were deviating from formal instructional schedules and the students were neither sitting in silence, nor complying with formal directives. Rather, they were shouting with enthusiasm, rejoicing in their learning, at times ignorant of the fact that they were actually learning.

Conclusion: This article shows that in Israel learning is equated with noisy and rather informal modes of instruction, suggesting that "active" methods have long-term educational effects on students' lives.

Keywords: learning; classroom instruction; key experiences; Israel; culture.

1. INTRODUCTION

"In one of my social studies courses for high school seniors, I conducted a discussion on possible contradictions between democracy and national security. The pupils worked in teams, preparing arguments for or against each position. The discussion between the groups provoked excitement, with pupils fervently shouting at each other. Suddenly in walks the principal, asking if all was under control. I answered that it was. After class the principal approached me and asked whether I had discipline problems in class and whether I had managed to finish teaching the required material" (reported by a high school teacher).

This incident reflects a common wisdom among educators, pupils, and parents alike, namely that silent classrooms are conducive to learning [1]. According to this position, silent classrooms provide conditions for effective learning, where teachers can cover the required curriculum in predetermined timing and at a predetermined level [2-4]. It is further assumed that noisy classrooms provide fertile ground for pupil misbehaviour and disengagement. For example, critiques of open or progressive schools claim that unorganised debates, open discussions and individualised learning might provide pupils with an opportunity to use the noise and din during such activities to disrupt classroom order. The common assumption is that learning in such settings undermines classroom order and exacerbates discipline problems. Learning and noise are regarded, then, as oxymoronic.

This assumption is indeed heralded by principals who pride themselves on the silent learning climate in their schools, regarding it as proof of effective learning. Teachers, too, consider silent classrooms as a key for learning and are inclined to

identify a silent classroom with efficient learning. Even pupils and parents emphasize the importance of a solemn atmosphere for learning, claiming that pupils cannot study properly in "noisy" classrooms.

In contrast, a growing body of scholarship has begun to undermine the sweeping conclusions of this common wisdom. Such criticisms stem from recent theoretical developments that point out the inability of traditional bureaucratic school systems (which opt for silent classrooms) to cater for long-term meaningful learning amongst pupils. Theoretical trends such as "constructivism in education", "active learning", and "authentic instruction" look for instructional and curricular features that allow pupils to have meaningful long-term learning experiences [5-8]. Furthermore, an increasing volume of research showing that there is no simple correlation between classroom noise and pupils' achievements supports such trends. This literature further suggests that under certain conditions silent classrooms might even create alienation and pupil disengagement [9,10].

Moreover, critical scholars claim that silence primarily serves schools as a control device, thus curtailing significant learning [11]. They claim that many schools maintain silent atmospheres as a disciplinary means, thus compromising significant didactic goals [12]. They argue that administrators settle for class attendance, focusing on the accumulation of required credit points for graduation exams. Many pupils react to such school policies with opposition, expressing little involvement in class and a protest of roaring silence. Nevertheless, most of them are well aware of the importance of a graduation diploma for their future. Consequently, they go through the motions and pretend to be busy learning, knowing that a facade of involvement is the real scale by which they are evaluated in school [13]. But behind their expressed silence, they harbour disengagement, alienation, and hostility towards school and school learning [14,15].

The debate over the silent classroom has theoretical and practical implications, and has consequently received much attention. While the academic critics of the silent classroom have gained momentum, educational policies in the past decades have pressed more firmly on schools to attain predetermined curricula and standards. For example, in the US the National Commission on Excellence in Education, and its repercussions in standards-based reforms two decades later has increased the emphasis on bureaucratic procedures and control mechanisms. In the UK, the

National Curriculum has similarly pressed for standardisation and control of instruction and curricula. Such reforms have not passed unnoticed in the world, Israel including.

Notwithstanding the importance of this debate over silent, controlled classrooms, most of the extant literature on the topic is polemic in nature and ideologically driven. This state of affairs precludes any firm conclusion put forth by the protagonists in the debate. Furthermore, most of the studies on this issue were conducted in ordinary or traditional classrooms, where learning is focused on transferring "dead ideas" from teachers to pupils. As a result, they could not examine the extent to which significant learning takes place in silent classrooms.

To overcome these limitations, the present study assesses the extent to which silent classrooms enable students to experience meaningful instruction. It does so by analysing retrospective key educational experiences that have left a long-term mark on pupils' lives. The study uses the most significant learning experiences that adults recall from their school days in order to reconstruct the type of instructional practices that were evident in those classrooms. On this empirical basis it seeks to reassess the claims about the efficacy of silence in classrooms.

1.1 The Classroom as a Learning Society

Willard Waller (1932) characterised the classroom as a learning society that imposes contradictory tasks on teachers: namely to teach and to motivate pupils. On the one hand, teachers are required to transmit the required curriculum in large heterogeneous classrooms. To that effect, they have to teach the pupils a pre-planned and pre-scheduled curriculum and prove to their superiors (as well as to parents) that their pupils achieve formal requirements. In order to meet this goal teachers are encouraged to discipline their pupils and safeguard the orderly environment of the classroom. Hence, they are keen on having a silent classroom, constantly supervising pupils and organising instruction using pre-prepared lesson plans [16,17].

On the other hand, the constant supervision and disciplinary control of pupils contradict the second task of teaching, namely motivating pupils, exciting them, and arousing their interest in learning. Different studies have shown that significant learning experiences occur when teachers supply pupils with a free choice of topics, challenging material, high level of skills, and relevant subject matter [5,9]. Therefore,

in order to attain their second task, teachers have to ease their disciplinary supervision and minimise pupil control. Overall, the more teachers try to supervise and control pupil behaviour, the less they succeed in arousing motivation in their pupils, and vice versa.

There is evidence that in facing this dilemma most teachers choose to supervise classroom learning, thus compromising meaningful learning and inquiry. Studies have shown that the duality of the classroom as a learning society leads teachers to perceive silence levels as a central measure for assessing their professional capacity as teachers [18,19]. Many teachers also know that supervisors, head teachers, and parents all expect them to maintain a silent classroom in order to assure amicable learning conditions for the pupils [20]. These conclusions are supported by findings of leaders in school effectiveness studies, who concur that silent and focused classrooms are more conducive for learning [21].

The inevitable compromises that teachers make – preferring controlling rather than motivating their pupils – stem from the organisation of the school [7]. The bureaucratic principles of public schools reward teachers who discipline their pupils, while obstructing those who seek to motivate the pupils by using informal strategies [22]. The following analysis suggests that silence in classrooms is indeed driven by organisational considerations.

First, hierarchical teacher-pupil relationships encourage teachers to maintain distance from their pupils, avoiding improvisation and flexibility [17]. They prefer to follow pre-set course outlines while preventing pupils from developing an independent learning agenda. Second, the bureaucratic requirement to abide by impersonal rules and regulations leads most teachers to meticulously cover the material in the curriculum while blocking new initiatives and learning ideas that are not "test material". To meet these requirements, teachers strictly hush their classroom so that they can "cover the material" in time. Thus, dictation from the teacher's notebook and reading out aloud from pre-prepared worksheets create the feeling of serious and silent learning, especially to external spectators. Third, school inspection rules also pressure teachers to maintain silence. Inspectors mainly assess external features of classroom instruction: They check national school timetables, assess the attainment of the National Curriculum, focus on decreasing dropout rates, and on controlling pupil misbehaviour. Studies have indeed shown that inspectors focus on symbolic and

formal aspects of teaching, placing less emphasis on the inherent technology of teaching, namely the motivation to learn and the meaningfulness of instruction [23]. Thus the ministry of education, school inspectors, and head teachers are all busy maintaining the core rituals of schooling, preferring silent classrooms to productive and meaningful, but unorganised learning environments.

This analysis suggests that bureaucratic schools encourage most teachers to discipline their pupils and insist that their classroom study in silence. Moreover, such traditional schools promote the belief that silence in the classroom indicates that pupils are busy learning.

Consequently, silence is usually equated with learning while noise and disorganisation are regarded as disobedience.

2. RESEARCH BACKGROUND

Although there is no direct evidence to prove that meaningful learning experiences can take place only in orderly, silent classrooms, there are different theoretical threads that indeed seem to support this general contention. First, Carroll's model of learning prompted many researchers to examine the effectiveness of teaching in terms of time [24]. The model assumed that all pupils can learn, and that pupils' talent variability required differential time allotments for achieving similar outcomes. Following these premises, different scholars measured the time allotted to learning in different classrooms, assuming that the time allotted for learning in a silent classroom equals to the time pupils are actually engaged with instruction [25-27]. These studies have shown that silent and controlled classrooms use up to 80 percent of the time allotted. Other studies have shown that noise level and pupil opposition in lower socioeconomic classrooms decrease the effectiveness of teaching by enlarging the gap between allotted time and engaged time [12].

A similar argument emanates from studies of school organisation. For example, a comparison between private and public schools suggests that orderly learning environments and achievement-directed school cultures provide more opportunities to learn and higher normative pressure toward school learning [28-30]. Thus, pupils in private and Catholic schools in the U.S. have higher achievements than their compatriots in public schools due to the fact that private schools have more orderly and silent classroom environments. In comparison, portraits of life in public schools

show that many classrooms are noisy and disobedient, with teachers sacrificing instructional demands in order to attain the facade of a controlled classroom. With some generality, then, these studies support the claim that silent classrooms are indeed more effective for learning.

Third, school effectiveness studies – a conceptually independent body of literature – have a similar view. These studies have attempted to extract basic features of school organisation and culture, which set some schools ahead of the pack, and emphasised that silent and controlled school environments yield high achievements [31-35]. In contrast, in schools that lack leadership and control mechanisms over pupil achievement, pupils evade learning while settling for the lesser side of the educational opportunities that schools provide.

Although they differ conceptually and methodologically, these three lines of study concur that orderly and silent classrooms constitute the grounds for efficient learning. They also seem to agree that noisy, uncontrolled classrooms harbour disobedience and pupil disengagement. Notwithstanding this agreement, these theoretical schools share similar shortcomings, which should preclude a hasty acceptance of their conclusions about the effectiveness of silent classrooms for meaningful learning.

There is reason to suspect that what these studies call "learning" is not really meaningfully experienced as such by pupils. These cumulative models of learning assume that learning is a slow process that takes time to materialise, with pupils accumulating knowledge by sitting in classrooms day after day, year after year. There is reason to believe, however, that meaningful learning experiences cannot be equated with the outcomes measured by most studies in educational research. School achievements in mathematics, science, or reading cannot be equated with meaningful learning experiences. Consequently, these studies have not yet provided sufficient evidence to decide that silent classrooms are indeed necessary for producing meaningful learning experiences.

Overall, existing research does not provide us with a resolution to the question of whether a silent classroom is actually a learning classroom, or more accurately whether a learning classroom is necessarily a silent one. The aim of the present study is to fill in the gap in this literature and test the claim that a meaningfully learning classroom requires silence. Unlike most studies in this field, the present study

examines meaningful and significant learning experiences that were reported by adults many years after their school days. Thus, by analysing these significant learning experiences, the present study attempts to examine whether these experiences occurred in classrooms that were silent, and if not, to assess the "noisy" activities in those situations.

2.1 The Study

In contrast to studies that use scholastic achievements as a criterion, the current endeavour uses meaningful, key learning experiences to assess the nature of effective instruction. Key learning experiences are those that have proved to have a decisive effect on pupils' lives [36-38]. They were episodes that allowed learners to evaluate their wishes, capacities and opportunities, and enabled them to break free from prior limitations and set themselves on a new path. These are the educational episodes that adults deemed to be the most influential in their lives, therefore serving as keys to their lifelong development.

2.1.1 Sample

The present study is based on a snowball collection strategy that culminated in a sample of 505 respondents, aged 21 and above (with a range of 21 to 75, and a mean age of 37 years). The sample is representative of the Israeli population, with the exception of rural residents who were over-represented. Students from two universities interviewed two adults from their neighbourhood, and personally reported on their own key educational experiences. After narrating their experiences, respondents filled out a questionnaire, which focussed on their best key experience. The present study focuses solely on school-related experiences. It is based on reports of 379 of the 505 respondents who reported on key experiences that took place in school. Overall, these respondents reported on 483 learning experiences. We used several criteria to select experiences: (a) we only used experiences we could tie with socioeconomic and educational background variables; (b) we focused on experiences which incorporated all the necessary features of organization, phenomenology and outcomes (see below); (c) we selected only those experiences which matched the task.

The extracted experiences were divided by school level. Most key experiences were recorded in high school ($n = 229$), with a smaller share in middle schools

(n = 92) and primary schools (n = 162). Statistical testing did not show any correlation between respondents' age and the type of institution that most prominently affected their life. This finding suggests that the results do not reflect memory-related recency effects. Moreover, it is possible that the design of the study triggered respondents to tell a story as a "turning point" narrative [39], though the phrasing of the questions asked respondents to report their best life experiences, or the most significant ones, without hinting at the fact that the study focuses on critical moments.

2.2 Methodologies

Data gathering was based on in-depth interviews in which the respondents were asked to report their three most significant learning experiences, whenever and wherever they occurred. After the interview, respondents were asked to choose the most significant experience of the three, and to answer a closed questionnaire related to it. Respondents were taped during the interview and the entire transcripts were taken from the tapes. Respondents were asked to address three main aspects of their key experiences:

Organisation – in this part the respondents were asked to describe the organisation of the activity, focusing on teaching practices and methods.

Phenomenology – in this part the respondents were asked to report their feelings during the activity, while discerning between intellectual, emotional, and identity-focused phenomenological experiences.

Outcomes – in this part the respondents were asked to report the long-term effects of their key experiences, while discerning between effects on their values, behaviours, pragmatic decisions, and personality.

2.3 Data Analysis

The study used a grounded-theory approach, combining deductive and inductive content analysis of the interviews. The analysis started with a deductive coding of the narratives using categories derived from the pilot study. Further categories were inductively gleaned from the data. Each experience was divided into segments (sentences and paragraphs), and each was assigned a main title. Similar titles were grouped into theoretical categories, which were developed and refined as the coding continued.

Grouped categories relate to different teaching characteristics (i.e., authenticity, surprise), and to attitudes toward a "silent" and a "noisy" classroom. Other categories served to count episodes where noise indeed reflected disciplinary problems. After completing the coding, the frequency count of key experiences in each category was summed up. While we focus on the qualitative aspects of those key experiences, we thought that a quantitative estimation of the "ecology" of outstanding instructional practices is important in delineating the prevalence of various features of those events.

2.4 Rationale of the Present Study

The present study examines instructional characteristics that were salient during key educational experiences. The main objective is to characterise the instructional methods and strategies that teachers used during these episodes. Conceptually, this approach seeks to assess whether these are "silent" strategies, and whether these methods indeed controlled and silenced pupils. This exercise is of utmost significance for the present study for two reasons.

First, if key educational experiences were not formed when teachers used "silent" methods, but rather when instruction was "noisy", then the claim that meaningful learning can take place in seemingly uncontrolled and noisy classrooms is borne out by the data. Second, to the extent that key educational experiences have indeed occurred in silent classrooms, we will be in a position to examine what actually happened during these silent episodes, namely whether pupils were passive (simply listening to a teacher), or rather were busy with disciplined learning activity. Finally, our approach enables us to assess the extent to which Israeli cultural codes drive "noisy classrooms" to prove effective in creating lifelong learning experiences [40].

3. FINDINGS

The reporting of findings is divided into four sections. The first two sections test the assumption that meaningful learning experiences mainly occur in silent classrooms. They examine the instructional strategies and methods that teachers used during key educational experiences, focusing on informal activities on the one hand, and on the contents of the activities on the other. The third section shows that a significant number of key experiences occurred outside the classroom, during field trips and "noisy activities". The fourth section suggests that even teacher-centered,

lecture-type instruction can remain engraved for life, conditioned on their instructional characteristics.

3.1 Contents and Activities in Key Educational Experiences

Table 1 presents the frequency distribution of the categories, which were used to describe instruction during key, highly meaningful learning experiences. Based on the analysis of the narratives, we distinguish between content and activity characteristics. The reports suggested that many key experiences occur in silent classrooms, but that the content of instruction during these episodes was relevant, authentic and challenging. However, the results clearly suggest that many key experiences took place in noisy classrooms, where the activities did not allow teachers to maintain a silent, orderly environment.

Table 1. Frequency distribution of content and activity feature in key educational experiences

Teaching Strategy	Type	Frequency (N)
Authenticity	Content	121
Relevance	Content	63
Challenge	Content	58
Performance in Public	Activity	56
Experimentation	Activity	34
Use of Multiple Skills	Activity	32
Constructing Peaks	Activity	25
Allowing Choice	Activity	21
Using Competitions	Activity	20
Using Surprises	Activity	10

The following exegesis of the results uses original transcripts from respondents' reports in order to exemplify the contents and activities during key educational experiences, and to characterise the atmosphere during these episodes. We usually cite one quote for each category, although we could have provided many more. The numbers appearing at the bottom of the quotes refer to respondents' ID code and memory number.

3.2 Content Characteristics

The most salient content characteristic appearing during key educational experiences is authenticity. Authentic instruction is usually defined as teaching real-life topics, or as doing real-life activities [5]. Most respondents considered authentic instruction as "learning from life and about life" – learning that is neither scholastic

nor disconnected from real-life and the adult world. Rather, the contents of instruction extend from real-life topics and connect pupil learning to their surrounding world. Authentic instruction brings pupils into direct contact with reality, without the mediation of a formal and emotionless school curriculum, which by its very nature relates to pupils' "ratio", or cold reason [41]. In contrast, direct contact with real-life situations allows pupils to feel and think at the same time, thus engraving the educational activity for a long time.

The analyses suggested that authentic instruction usually took place outside the ordinary classroom, immersing pupils in real-life situations. These settings were devised using learning expeditions and by visits to institutions, or by an active participation in an event [42]. These visits and active participation in authentic settings can turn routine topics into lifelong, key educational experiences. For example, a 24 year old respondent described an authentic lesson his teacher devised instead of a routine social studies lesson.

"In our social studies class in the 11th grade, we conducted discussions about motor vehicle accidents. At one time we went to visit the hospital where many accident casualties were hospitalised, some in critical condition, some even comatose. It is rather difficult to admit, but no teacher, no lecturer, nor traffic professional who came to the classroom to talk to us, no officer or doctor could ever be such a strong and real education figure as that critically wounded person in that ward. The learning method was the situation itself... healthy children standing face-to-face with an accident victim" (44/3).

The second most frequent category was relevance. Understanding, as John Dewey claimed, happens only through an experience, which is related to pupils' lives [43]. Learning must stem from past experiences and build up from the local to the universal. Similarly, many scholars claim that learning has to happen "close" to the individual (in his "proximal zone of experience", as Vigotsky says), and relies on pupils' original experimental discoveries. This perspective indeed promotes school reform in many places, which opt to adopt relevant instruction and curriculum that connect with pupils' lives. As children differ from each other in their abilities, interests and past experiences, a relevant curriculum must allow each one to choose his or her personal topic of interest. Noteworthy in this respect is Theodore Sizer's dictum that

"Kids Differ" [8,44], a basic principle later developed in his Coalition of Essential Schools.

Examples for relevance in teaching reappear in respondents' narratives of their key educational experiences. For example, a 30 year old educational counsellor told us about the research project she did during the seventh grade.

"Seventh grade was the Bar Mitzvah year in the kibbutz, part of which was dedicated to a project which examined a topic related to Israel. At that time I was reading a book by Dvorah Omer, called "Love unto Death", which describes a love affair between a young girl from the army during 1947-8, and one of the boys there, who was later killed. As a seventh grader I was touched by the story and decided to write my project on that. It was a true story and I decided to write my paper on that topic... My father drove me to Dvorah Omer's house and I talked to her... she let me read some of the diaries that the girl (Zohara) kept, which were the raw material for the plot... My father also drove me to see one of Zohara's childhood friends... reading Zohara's diaries and talking with her friends linked the reality and my imagination (the book)... the mere connection of something I read with its reality made that experience that much more unique and fascinating... my decision to study literature and education rose out of my feelings and interest in studies which could be applied to reality" (279/1).

The third most frequent content characteristic is challenge ($n = 58$). Many respondents, some of whom had previously defined themselves as mediocre or poor pupils, noted that their "great moments of learning" were characterised by the difficult challenge they faced. Often, those were tough research assignments given to pupils in or out of school. In other cases, pupils were faced with topics and assignments that were intellectually and emotionally challenging, and promoted stormy and lengthy debates in class. All in all, challenging assignments demanded that pupils make the most of their personal resources (thinking, will-power, self-discipline and motivation), while requiring high performance levels, concentration and engagement. One of the most challenging instructional strategies was based on teamwork where pupils had to solve difficult problems and assignments in a group. A respondent who reported on his physics class provided an apt example for this category.

"The teacher presented us with a time-limited challenge, namely to build a device which produces its own energy... the pupils spent the whole weekend trying out different ideas and methods, using all the material and knowledge they possessed as

well as their creative imagination... of course we did not make it, but... we did not feel we were busy learning, but rather that we were dealing with the challenge of proving to that teacher that we could do it" (200/1).

The challenge in those tasks is often accompanied by a time limit, which creates a sense of urgency among pupils. In this and other cases we learnt that pupils dropped all other activities and focused their energy on solving the problem, since it was important for them to prove to their teacher that they could meet the challenge.

3.3 Characteristics of Informal Activity

Besides content characteristics, the analysis has pointed to seven other informal features of key educational experiences. The frequency count of these features appears in Table 1, and the following discussion elaborates on a number of them.

The most frequent instructional strategy we found ($n = 56$) is performance in public. Respondents have a varied perception of an "audience", including peers, adult guests (e.g., parents), and external evaluators. Performing in front of an audience puts pupils in a stressful situation and encourages them to attain their best performance. We have found that public success and immediate feedback arouse intense feelings and self-fulfillment among respondents. For example, a 44 year old respondent recounted that at the age of 15 she enjoyed her geography classes particularly because the teacher appointed her as a "little teacher". At the beginning of every lesson the respondent conducted a 10-minute rehearsal with her class peers.

"I enjoyed the activity very much. It was lots of fun standing in front of the class, explaining the issues and discovering that pupils are interested and understand my explanations. I felt I was in command of the curriculum, that I was a good pupil, and that I was well able to explain the lesson to my classmates. The presence of the pupils prompted me to continue and explain and repeat it every time. This made me highly satisfied" (368/2).

The second most frequent instructional activity was research and experimentation. As many scholars already noted, significant learning occurs when pupils actively understand the material, through experimentation and research activity [5,43,45]. Respondents' recollections of key experiences suggest that they were asked to gather data, perform tests, systematically document incidents, analyse

data, and prepare a research report. Experimental work in biology class, or writing a theoretical paper in a social science class, created an almost singular experience where pupils felt that they are finally responsible for creating, criticising, and validating knowledge. For example, a respondent reported that as part of his high school geography lessons he had to choose one elective course out of several options, and he chose navigation because it interested him. In this informal framework, the geography teacher taught the pupils to read maps and draw navigation routes.

"Learning was practical. We went out for two- or three-day field trips. At the beginning of each trip the teacher explained the maps, and then the pupils went out for a hands-on experience, alone or in pairs... The independent experimentation was very enjoyable. It gave us a feeling of independence and control, confidence, and a sense of orientation... In time, this preoccupation with navigation turned from a hobby into a semi-professional career. I took part in many navigation competitions in Israel and won first prize in quite a number of them" (384/3).

The third instructional strategy we deciphered was skills. Indeed, supporting a rich research tradition [46-48], the present study found that instructional activities that used a variety of pupils' skills tended to leave their mark for many years. Examples are numerous and varied: artistic skills (acting, dancing, singing, painting), technical skills (building and dismantling construction) or personal skills (handling time pressures, organisation management, teamwork). In all the narratives in which this strategy appeared, the activity demanded that pupils use more than one skill. A good example is the story of a respondent who today works as a guide in a science museum.

"In the ninth grade biology class, we were asked to write a paper on air pollution. Later, the teacher asked for volunteers to put up an exhibition on air pollution. I volunteered and together with a team of five other pupils we were busy for a whole month preparing the exhibition. It was important for us to put across the message to all pupils, in a clear and understandable way, so that even those who were not interested in the subject would support the issue. Our cause was sublime: to arouse awareness of the risks of air pollution. Unlike our theoretical paper, here we had to use many skills, working under a pre-set timetable and using creative and original skills. For example, we drew the globe crying for help: "My hole in the ozone layer was growing and the icebergs were melting..." On another poster, we pasted all kinds of sprays ejecting preones, which attack the ozone layer. In order to illustrate acidic rain

we drew black forests, deserts and wilderness, versus green and fresh grass with budding flowers. The teacher gave us a free hand in deciding which topics to focus on, and how to present them... The exhibition, which we built single-handedly, was positioned at the entrance of the school and was highly successful... we received praise from other pupils. During the activity I felt self-fulfilled and experienced a sense of vocation. Constructing the exhibition by ourselves gave me a sense of motivation to learn and apply myself; it taught me what teamwork and cooperation is all about, and I felt in control of the subject matter" (451/1).

This report illustrates the importance of using pupils' skills. Firstly, the use of skills can influence pupils' engagement in class, as they are given the opportunity to express their skills and capabilities – a very different feat to what is commonly demanded in silent, orderly classrooms. Secondly, exhibiting their prowess using different media (painting, writing, putting up exhibitions, theatrical shows) allows otherwise lesser involved pupils to take part in organising such activities [6]. Furthermore, the multi-media character of such activities promotes the use of many senses (touch, vision, hearing, smell, and even taste) and touches a variety of interests, thus allowing almost every pupil to take part in the activity and enjoy learning.

Another strategy that teachers used to challenge and motivate pupils was evident in their use of competitive situations. Respondents reported that their peak motivation occurred during the competitions that their teachers conducted in class. Competitiveness was not the main theme of the activity, but rather a catalyst that the teacher used to prompt pupils to take an active part in learning. Nevertheless, competitions can transform a dull lesson into a highly emotional endeavour. As a result of such arousal in class, pupils retain long-lasting memories of the content of instruction, or of its moral principle. For example, a young respondent described a covert though significant competition that her teacher initiated between her pupils.

"As part of my high school curriculum I chose to study Arabic. In my final year we had to pass an oral graduation test. But most pupils, myself included, had a very hard time with that. We felt stressed and tense, fearing the test... One day the teacher invited us over to her house. We watched a short videotape of her last visit to Egypt, listened to songs in Arabic, and she gave us some refreshments. We talked and laughed like friends... Then the teacher asked us to tell a story in Hebrew, and she helped us write it in Arabic. Then she prompted us to have a dialogue in Arabic about

the meaning of the stories. Thus, we began a sort of invisible, but positive, competition, as each pupil wanted to express his own opinions and oppose the others... Finally, we learnt to love Arabic and succeeded nicely" (451/1).

Surprise – although the least prevalent strategy we extracted – represents another unique means by which teachers arouse intense feelings and motivation. Surprises in activities create highly emotional excitation and promote pupils' cognitive insight. Furthermore, such situations create high motivation among pupils, who seek to discover or solve the mystery that the teacher cast into the activity. Surprising activities could take form in a variety of ways. According to some reports, key educational experiences took place when pupils did not know what to make of the teacher's plotted lesson. For example, one respondent described a surprising activity that her science teacher created in primary school.

"The teacher, a colorful personality, called for a volunteer and asked him to lie on her desk (usually covered with test tubes). She blindfolded him and forbade us to react throughout the experiment. In addition, we were neither told what the subject matter was, nor about the purpose of the experiment, so we did not know what to expect. The teacher inserted pieces of paper between the volunteer's toes and lit them. The pupil began rotating his legs as if he was riding a bicycle and just in time the teacher removed the burning pieces of paper. This is how I learnt the fascinating topic of instincts. The surprise caused excitement in class" (51/1).

This story demonstrates that pupils had no clue as to what was about to happen in class. Then, in what seemed like a scene from a highly charged emotional gathering, e.g., where the preacher is inspiring his congregation, the respondent had an insight – the topic of the lesson, which earlier had seemed to be an unfocussed, chaotic educational activity, became clear to her.

In reviewing the results, it appears that key educational experiences did not take place in silent classrooms. The analyses have shown that pupils were all but slumber: they were active, fervent, enthusiastic, and keenly interested in the topic; they were emotionally aroused, feeling excitement and fulfillment. The content and activity characteristics described here suggest that for instruction to have long-lasting effects on pupils' lives, it cannot be based on simple teacher-centered strategies. Likewise, teacher-centered, controlled and supervised classrooms left few

traces in pupils' recollections. Rather, instruction that passed the test of years was based on "noisy" and seemingly disorderly strategies.

Performance in public was necessarily predated with uncontrolled, cheerful rehearsals; competitions generated shouts and enthusiastic engagement; relevance and authenticity made things dear to pupils' lives, thus implicating their selves in the activity, resulting in highly emotional and fervent involvement. Although we do not test this hypothesis here, we conjecture that instructional activities that combine several of the above mentioned content and activity features are more likely to have long-lasting effects on pupils' lives than those that use only one or none at all. All in all, the evidence suggests that although key educational experiences did not necessitate noise or disorder in class, they rarely occurred in silent, highly supervised classrooms. The next section elaborates on this claim.

3.4 Outward Bound: Learning Outside the Classroom

Dewey and Whitehead, the American pragmatic philosophers, noted at the beginning of the twentieth century that instruction through the use of experimentation could translate disconnected scholastic knowledge into the child's own reality, and thus revive "dead ideas" [43, 49]. According to their position, only experimental learning, which connects classroom learning with authentic and relevant topics outside the school, deserves the title of education. The findings of the present study support this philosophical view, by showing that key educational experiences occur "in the real world", i.e., outside schools' boundaries [42].

Indeed, many respondents ($n = 65$ or 13.5% of the experiences) pointed to the fact that their key educational experiences took place outside the classroom. Learning through field trips, visits to an orchard, and excavating genuine archaeological sites combined theoretical content (previously studied in class) with its authentic, natural setting. Outward-bound activities are enriching, helping pupils gain insight about the topic and its natural context. For example, a 45 year old respondent spoke about her high school biology classes, which took place outside the classroom. She described how enjoyable these field trips were, and why pupils were cooperative the whole time.

"My high school science teacher was an avowed science lover and an expert on reptiles and plants of all kinds... Few were the lessons we had indoors. Sometimes

we were in the lab, and sometimes we strolled in the fields surrounding the school, or travelled far away on field trips... he used to talk about the topics while picking up stones and telling us: "look, under this stone I found the reptile which is called so and so..." We never dared interrupt his lessons, because the experience was so engaging that we did not want to make trouble in class and be punished and miss the next field trip" (304/1).

3.5 Silent Engagement in Teacher-Centred Classrooms

Significant learning experiences rarely occurred in silent classrooms. Nevertheless, the evidence suggests that under certain conditions even teacher-centred instruction can produce key educational experiences. The analysis found that many respondents reported their significant learning experiences to have occurred in teacher-centred classes ($n = 75$), where teachers combined authenticity, relevance, surprise, or peaks into the curriculum. Integrating these characteristics in teaching resulted in pupils' cognitive curiosity and emotional involvement with instruction. For example, one respondent described her high school history teacher as follows:

"The teacher entered the classroom and said she was going to talk about the Holocaust. This was not surprising, as it was part of the curriculum. We took out our notebooks and pens but the teacher said, 'there is no need'. I have to admit that I personally did not like history nor did I like the teacher. I used to disrupt and disobey from time to time. She started the lesson with a presentation from that period. She said she was going to speak as a Holocaust survivor. She talked about her parents, about their life in the community. She didn't ask questions – it was one continuous lecture... we sat there for two long hours mesmerised. We even gave up the break. At the end of the lesson she opened the box that stood on her table, and took out a bar of soap, displaying it as her family members. We were shocked. I can still remember that lesson in detail" (232/1).

There is reason to believe that the silence in this and in similar classrooms was due to the pupils' keen interest in what the teachers had to convey. To the extent that the contents were authentic, challenging and relevant to pupils' lives, they willfully cooperated with their teacher's agenda. To the extent that such encounters required pupils to incorporate their personal resources into learning and forced them to think, to introspect or retrospect; to the extent that they learnt new things about their

environment and about their own selves – to that extent pupils had immersed themselves in learning, entering a state of flow [50]. Unlike traditional teacher-centered instruction, learning in highly challenging and authentic classrooms does not allow pupils to remain passive. Silence in these cases resulted from attentive listening on the part of the pupils, rather than from an enforced discipline by the teacher. In conclusion, the testimonies that we analysed prove that it is possible to significantly affect pupils even in teacher-centred classrooms – without the need to use "firecrackers", charisma, or highly charged rhetoric.

4. DISCUSSION

The present study has provided an initial description of instructional practices that teachers used in what time proved to be adults' most meaningful educational encounters. It has demonstrated that certain content and activity characteristics generated cognitive and emotional involvement among pupils that affected their life henceforth. The following discussion of these results touches upon four main conclusions.

First, the study has shown that most key educational experiences occurred in a "noisy classroom" rather than in a "silent" one. While the literature assumes that teacher-controlled and silent classrooms constitute arenas conducive to learning, the present study shows that meaningful, key educational experiences mostly occur during an active and noisy interaction among class peers, during a public performance in front of an audience, while working in pairs, through interviewing and arguing, and by utilizing different skills and capabilities.

Teachers' use of competitions often led to pupils shouting at each other with excitement. The construction of peaks and surprises in the curriculum generated involvement and enthusiasm. The requirement to exhibit diverse skills and capabilities often created a carnival-like atmosphere in class.

Thus, in contrast to pupils' usual silent attendance in school, the instructional strategies described here necessitated pupils to attend to relevant and authentic issues, which demanded their utmost cognitive effort. During these key educational episodes, learning did not require silence. On the contrary, silence in class would have annihilated learning and dulled the emotions that surfaced during the activity, replacing them with a cold, meticulous scholastic activity. One respondent summed up her

experiences poignantly: "That was not a silent classroom, there was a lot of noise, but such a healthy noise, where everyone called out to the other: 'I found, I discovered, come see what I've got'. That was extremely interesting, the noise, the sounds, the voices. These are things I remember until today" (200104622).

Second, some of the experiences mentioned here did not involve stormy verbal interactions. Nevertheless, the pupils were far from being passive. Instruction in such contexts impelled pupils to use their capabilities in an active and motivated manner. For example, the paper that the respondent wrote on the protagonist in Dvora Omer's story (relevance), or the preparation of drawings and presentations for the air pollution exhibition (skills), did not require that the respondents work in a noisy setting. Indeed, pupils can perform such assignments without talking, some without need for interaction whatsoever. Nevertheless, these tasks definitely demanded respondents to use their cognitive ability, skills and capabilities, while exhibiting enthusiasm and learning derived from inner motivation. All in all, it seems that a passive engagement, which characterises silent classrooms (where teachers talk and pupils listen), is rarely mentioned in the context of significant, key learning experiences.

Third, admittedly, in about 10 percent of the experiences the activity took place in the context of a teacher-centred classroom, which could be externally described as a silent classroom. Nevertheless, the results have indicated that the key experiences that occurred in these settings were not like any other silent, teacher-centred lesson in school. In almost all cases we found the lesson to be authentic, relevant and challenging, and the topics were mostly connected to pupils' lives, or to burning issues that had to do with the community, the school, or their country. Thus, although the teacher controlled the classroom and instructed in a structured method, pupils in these settings participated enthusiastically, with overt excitement or covert emotional involvement. This implies that teachers can maintain conservative instructional activities, yet modify the contents of the curriculum in creative ways, connecting with and reaching to the life-world of their pupils. Such curricular modifications can promote exciting debates that would set them apart from the tradition of neutral, insignificant and routine school learning.

Fourth, the current study suggests that the alleged contradiction between noise and meaningful learning has little empirical support. It has shown that "positive noise" was evident during key educational experiences, yet it did not harm order in

the classroom. In fact, quite the reverse: respondents remembered many teachers because they promoted noise in their classroom, without losing control over instruction or discipline. Actually, the reports have indicated that some teachers ($n = 25$) considered noise as a positive factor that improves learning and discipline in the classroom. This contrasts with the common belief held by most teachers that such noise harms the pupils' ability to learn. Moreover, 40 respondents explicitly referred to active learning and noise as beneficial, because these features formed a positive learning atmosphere, aroused interest in the topic, and caused enjoyment and, paradoxically, even order and discipline in class. The following quotes attest to this statement: "The classes were conducted as a debate, the theoretical material which we were all familiar with was taught in the most interesting way possible, and this I believe is the reason there was no need for disciplinary measures. The pupils came to learn, because of the lesson" (178/1). "The experiment related to the topic... we worked in teams and the teacher passed between us and talked with us... The noise of talking did not bother us. It was almost like a "free hour" which nobody wanted to miss" (215/1).

Finally, this study supports the thesis by Waller (1932), Bidwell (1965), and Yair (1997), who claimed that instruction is undertaken in a sociologically ambivalent setting [51], with teachers torn between the need to motivate pupils and to discipline them at the same time. The results suggest that teachers who preferred to inspire their pupils and excite them through learning have been remembered in the long term. In contrast, the efforts to discipline pupils result in boring them. Thus, the bureaucratic emphasis that compels most teachers to emphasise discipline, social order and silence in class results in pupils remembering very few teachers and meaningful learning experiences. An emphasis on order, discipline and silence curtails the potential influence of teachers on pupils, and neutralises the basic goal of schooling: developing interest and love for learning, and influencing pupils' lives.

Nevertheless, the contradiction between discipline and motivation is not inherent in classroom instruction [9]. The present study suggests that by creating high motivation for learning, teachers can neutralise the need to discipline pupils since learning results from pupils' inner interest. The study has indeed shown that when instruction was authentic, relevant and challenging, when it was built on suspense, surprise, peak moments and competitions – pupils participated energetically, without

causing discipline problems. The noise – and there was much noise during these key experiences – was the noise of learning, of enthusiasm, of the enjoyment involved in acts of creation. There is evidence that the insistence on disciplining pupils results in boredom and – as a consequence of that – in noise, discipline problems, and alienation from instruction [52]. Upon reflection, it seems that teachers fear discipline problems in their classroom because they understand that what they do in their silent classroom actually bores their pupils.

5. CONCLUSION

To conclude, it seems that the question is not whether noise is conducive to learning, but rather what type of noise. The current study has shown that high noise levels that derive from enthusiasm and interest in learning do not contradict school goals. Therefore, if schools wish to affect pupils, they need to find ways to allow more teachers to be authentic, relevant and challenging. They need to expand the use of surprises, peaks, competitions, and independent research. The present study has shown that silent classrooms conceal what time will prove to be meaningless instruction. In contrast, it has shown that what externally seems to be a disorderly, chaotic classroom may actually constitute an arena that is educative and will be meaningful for a lifetime. In concluding this paper we suggest that there might be some Israeli uniqueness to our results, as culture always plays a part in learning and instruction [40]. The Israeli national habitus fits the features we identified here [53], and it is possible that students in other countries might be shocked by some of the outstanding activities we described here. Comparative studies need to ascertain this conjecture.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Didactic Lectures and Interactive Sessions in Small Groups: A Comparative Study among Undergraduate Students in Hawler College of Medicine

ABSTRACT

Aims: To study and compare didactic lectures with interactive sessions in small groups among undergraduate medical students.

Study Design: A quasi-experimental research design.

Place and Duration of Study: Hawler College of Medicine, between October 2011 and May 2012.

Methodology: Two administrative groups of students were selected out of four groups of medical students in their final year at Hawler College of Medicine. A pre-test and post-test evaluation of both experimental and comparison groups was conducted using the same criteria. A questionnaire was used to address students' perception of the new teaching method. For comparing the results of both groups in the examination, we computed the mean mark achieved by each group (pre- and post-test). Student's t-test was used to compare means of both groups.

Results: Out of 72 student's who were originally included in the study, 64 students' (88.8%) of both groups performed both pre- and post-test examinations. The age range of the students was 21-26 (mean age \pm S.D 23.25 \pm 1.01). There was no statistically significant difference between the two means (pre- and post-) of the lecture format ($P = 0.15$), while the difference between the two means of problem-solving interactive class was statistically significant. Students in the study group showed higher marks than students in the lecture format ($P = 0.059$). Twenty eight (90%) students found interactive sessions more active way of learning than lectures, 29 (93%) students agreed that interactive sessions provide more group interactive skills. There were some negative attitudes like heavy workload on students (55%), and uncertainty about the accuracy of information from colleagues (52%).

Conclusion: Effectiveness of small group teaching may depend on the teaching style in small groups.

Keywords: didactic lecture; small group; interactive session; Hawler College of Medicine.

1. INTRODUCTION

The impact of teaching plays a major role in the learning outcomes in undergraduate medical education. This is more important in generating effective professionals. Its effectiveness depends on how much has been received by the students or the target audience. There are different methods of teaching; lectures, tutorials, seminars, by having a panel of experts, brainstorming, videotapes, class discussions, small group discussions, case studies, role playing etc. [1].

The lecture is the most traditional method of imparting knowledge to students. It is the teaching method that is used frequently in the majority of medical schools despite the problems that are often attributed to it [2].

Student learning is one of the primary goals of universities. Suitable student-oriented teaching methods can help motivate students and help them realize their potential. One of these methods is small group teaching. It is student-centered and the tutor plays the role of facilitator [3].

Small group teaching has been the highlights of a revolution in medical education over the last 40 years [4]. Small group teaching is a rather broad term without a clear definition. It covers tutorials, seminars and small problem-solving classes. A small group is a number of people who interact in a face to face situation where the size of the group may vary from a handful of students to around 30 participants and about 8-12 is an optimal number [5, 6]. The concept of interactive sessions and small group teaching is not new. Socrates was a great exponent of this method of teaching [7].

The effectiveness of small group teaching against didactic lectures is well documented [8]. Small group teaching helps in generating free communication between the group leader and the members and among all the participants themselves. The faculty who acts as the group leader is a facilitator, allowing the participants to express themselves [6]. In fact, small group setting provides an ideal opportunity for teachers to facilitate active learner participation [5]. Reducing the size of the class will produce many benefits for teachers and students; for example. Students would receive more individual attention, teachers will be able to manage the students better, discipline problems are likely to be less and there is more interaction between students and teachers. When the teacher spends less time in managing the students, more time can be utilized in teaching [8].

Small group teaching has become an increasingly important component of undergraduate medical education and many schools with more traditional curricula have incorporated a significant number of small group teaching sessions into undergraduate programmes for medical students [9].

The traditional lecture approach has been the core teaching method in the Iraqi medical colleges. Several activities and initiatives at both national and individual levels have been adopted for reviewing medical college curriculum and introducing new teaching methods in Iraq over the last two decades [10].

The first medical school in Iraq, Baghdad College of Medicine was established in 1927. The college adopted the Edinbrough curriculum, which reflected standard teaching curriculum of the time. Other medical colleges are subsequently established throughout Iraq and all adopted the teaching curriculum of Baghdad College of Medicine [11].

The traditional lecture approach or the content-oriented approach is still the core teaching method followed by Iraqi medical colleges. Several national activities have been adopted for reviewing medical colleges curricula in Iraq over the last three decades. The purpose was to develop a national curriculum for medical colleges relevant to community needs [10].

Quasi-experiments are studies that aim to evaluate interventions but that do not use randomization. Similar to randomized trials, quasi-experiments aim to demonstrate causality between an intervention and an outcome. Quasi-experimental studies can use pre-intervention and post-intervention measurements as well as nonrandom selected control groups [12].

The aim of this study was to study and compare two different teaching methods, didactic lecture and interactive sessions, in small group among undergraduate students in Hawler College of Medicine.

2. MATERIALS AND METHODS

This study was a quasi-experimental, pre- and post-intervention with control, research done in Hawler College of Medicine. Hawler Medical University (HMU) is located in Erbil city in the Iraqi Kurdistan Region. It includes four colleges: Medicine, Dentistry, Pharmacy, and Nursing. Teaching in the four colleges is in English language. The University is affiliated to the Ministry of Higher Education and Scientific Researches of the Kurdistan Regional Government. College of Medicine has been established in 1977 comprising 12 different basic and clinical departments. It awards Bachelor degree in Medicine and Surgery (M.B.Ch.B).

A sample of 6th year medical students was selected for participating in the study. Sixth year students in Hawler College of Medicine composed of around 140 students, divided into four subgroups, each subgroup comprised 35-37 students. Two groups of students were selected, by simple random sampling method, out of four groups.

The 35 students group (19 male and 16 female) was chosen to receive the experimental model (study group) taught through interactive session while the comparison (control) group composed of 37 students (20 male and 17 female) and taught through traditional lecture format. The study was carried out at Briaty and Malafandy primary health care centres in Erbil city.

Students in the experimental group received the topics through interactive sessions (problem oriented solving class) while students in the comparison group received topics through traditional lecture format.

A multiple choice pre- and post-test consisting of 60 multiple choice questions (MCQs) was developed by the team in cooperation with a neurologist, rheumatologist and a gastroenterologist. Both experimental and comparison groups received a pre-test of knowledge administered at the beginning of the first interactive sessions and prior to the lecture for those participating in the comparison group. Both groups were re-tested (post-test) following the completion of the education event.

The Research Ethics Committee of Hawler Medical University approved the study and an informed consent was obtained from each participant after giving them full information about the study.

2.1 Educational Intervention

An educational intervention was designed to: (1) Provide students with the knowledge required for diagnosing three common medical problems in primary health care (Headache, Abdominal pain and Backache) effectively; (2) Introduce them to the tools and strategies for the management of these three conditions. The learning objectives of the educational intervention was focused mainly on developing clinical reasoning skills among the students.

Three teachers in Hawler College of Medicine trained in delivering student centred learning programmes were selected to deliver the interactive sessions and lectures. Both groups (the interactive session and lecture) were taught by the same teachers. The interactive sessions comprised 6 cases; all based on actual clinical cases. These cases were developed through consulting experts in the field and were given to the students before starting the session, students discuss with each other all

aspects about the case during the session and tutor facilitated the session and clarified some difficult points about the cases when needed. The lectures were designed to cover all key content objectives identified for the study group and given as knowledge based information by the teacher. Oral instructions regarding the process of teaching were given to the students in both groups before starting the experiment.

2.2 Data Collection and Analysis

A questionnaire was used to address perception of students participated in the sessions of the new teaching method. The questionnaire comprised 10 questions. Answers were to be provided on five point Likert scales ranging from one (strongly disagree) to five (strongly agree).

Statistical package for social sciences (SPSS) version 17.0 was used for data analysis. Student's t-test was used to compare means. Paired t-test was used to compare between pre- and post-test scores of a single group, while t-test of two independent samples was used to compare between the mean differences of the two study groups. A p value of $D 0.05$ was considered statistically significant.

2.3 Validity of the Test

Validity is a quantitative expression that indicates whether a test measure what it was originally intended to measure. Content validity is a form of validity refers to the assessment comprehensiveness or test appropriateness [13]. Content validity of the tests was evaluated by a committee, which consisted of teachers and experts in three topics under study. A test was developed in which the total pool of selected items was seventy-five. The test was divided into three parts of 25 items each. First part belonged to headache and second part related to backache and the last part related to abdominal pain. Firstly test was presented to the committee. Then pilot testing was conducted with ten students of same level for whom it going to be used. Too easy and too difficult items were discarded in the light of the result of the test. At this stage 15 items were dropped. Thus the final form of the test comprised 60 items (20 items for each topic) was prepared.

3. RESULTS AND DISCUSSION

A quasi experimental design was used in this study as students were not randomly assigned to study groups. The newly implemented interactive session was

integrated into the ongoing traditional study programme of the college taking into consideration practical difficulties of randomly assigning students into two groups.

The main difference between a quasi-experimental study and a true experimental study is that in an experimental study, the participants are assigned to a treatment group or a control group by random assignment. While doing so will allow you to get the best evidence of whether or not your intervention had the intended causal effect, random assignment is not always a practical step to take in the real world. It is usually impractical to ask a school or school system to divide up students in their school into two separate classes through random assignment. When random assignment is impractical, the pre-post-test design, in this case, may give you the best results with minimal classroom disruptions [12].

Out of 72 students who were originally included in the study, 64 students (88.8%) of both groups sat both pre- and post-test examinations; 33 students were from the comparison (control) and 31 students were from the experimental (study) group. Study group participants filled out also the questionnaire on subjective perception of the interactive sessions. The age range of the students was 21-26 (mean age 23.25 ± 1.01).

The sample size was small because each administrative group consisted of around 35 students and practically was not possible to add students to each administrative group. It is important that both the treatment group and the control group are of adequate size to be able to determine whether an effect took place or not. While the size of the sample ought to be determined by specific scientific methods, a general rule of thumb is that each group ought to have at least 30 participants. Many other studies done to compare traditional teaching methods with innovative curriculum in different countries used sample size close to our study [14-19].

This study showed that the difference between pre- and post-test in lecture format was not statistically significant, while there was statistically significant difference between pre- and post-test in interactive session. Students in interactive session perform better than students in control group but the difference was not statistically significant.

The mean \pm S.D pre-test mark of the control was $50. \pm 10.$; mean \pm S.D post-test mark was $54. \pm 10.$ and the mean difference was 3.6. There was no statistically significant difference between the two means ($P = 0.15$). The mean \pm S.D pre-test of the study group was 50 ± 10 ; the mean \pm S.D mark of post-test was 56 ± 9 . The mean difference between the two tests was 6.7. There was statistically significant difference

between the pre and post-test results ($P = 0.009$). While the difference between the mean difference of the control group (3.6) and that of the study group (6.7) was not statistically significant ($P = 0.059$) (Table 1).

Table 1. Mean marks of both groups (study and control)

Teaching method	Type of test	Mean \pm SD	Mean difference	95% confidence interval	P value
Lecture (Control) group	Pre-test	50 \pm 10	3.6	(-8.6) - (-1.3)	0.15
	Post-test	54 \pm 10			
Interactive Session (study) group	Pre-test	50 \pm 10	6.7	-11.7- (-1.7)	0.009
	Post-test	56 \pm 9			

The better performance of students in interactive session could be attributed to the fact that students read the case before coming to the session and did some private study in addition to the interaction during the session which may lead to better retention of information rather than memorization. Worldwide studies evaluating problem solving oriented class (interactive sessions) revealed variable findings. In a study done in Hong Kong, students showed statistically significant improvement in most of the aspects of the learning [16]. In other studies done in India (8) Iran [17] and UK [20] students scores in interactive sessions was more than lecture format, However, students in both formats showed similar knowledge in a study done in Pakistan [21] and in Netherlands [22] and students performed better in lecture format than problem based learning format in a study done in Hong Kong [23].

Out of 35 students in the experimental group (21 males and 14 females), a total of 31 students (88.5%) filled the questionnaire. The perception of the students was positive toward interactive session through their response to the questionnaire. Twenty eight (90%) students reported that interactive session was a more active way of learning, and twenty-five (81%) of them mentioned that they feel comfortable in the discussion and twenty nine (93%) agreed that interactive session provides more group interaction skills and 26 (84%) mentioned that interactive session motivated them to use more resources (Table 2).

This is similar to the findings of studies in China [24], Hong Kong [23] and in Iran [17] in which students preferred small group interactive sessions in terms of participatory learning, team working, effectiveness and developing self learning skills.

In China 89.4% of the respondents admitted that interactive sessions made them feel satisfied when their ideas were accepted by classmates; 80% reported that problem oriented class was more interactive than their own learning style; the majority of students reported that problem oriented class allowed them to learn on their own [25]. In Malaysia, 79.0% of respondents found problem oriented class sessions interesting; more than 65% of respondents were of the opinion that problem based sessions were beneficial in achieving their learning objectives and allowed in-depth understanding of the topic of study, and problem based class helped them in linking basic science knowledge to clinical appraisal skills and to develop group interaction skills [26]. In another study done in Hong Kong, many aspects of the small group student-centred activities were highly valued by students [27].

Table 2. Positive attitude of students toward interactive sessions

% Statements	Strongly agree and agree N (%)	Undecided No (%)	Strongly disagree and disagree No (%)
Interactive sessions is more way of learning	29(94)	1(3.2)	2(6.4)
I am comfortable during the interactive session	25(81)	1(3.3)	5(16)
The interactive sessions me to use additional learning resources	26(84)	4(12)	1(3.2)
Interactive session provide group interaction skills	29(94)	1(3.2)	1(3.2)
Enough learning resources available for interactive session	9(29)	11(35)	11(35)

There were some negative attitudes like heavy workload on students (55%), uncertainty about the accuracy of information from colleagues (52%) and stress in attending interactive sessions (22%) (Table 3).

Table 3. Negative attitude of students toward interactive sessions

% Statements	Strongly agree and agree N (%)	Undecided No (%)	Strongly disagree and disagree No (%)
Attending interactive session is stressful	7 (22)	4(13)	20(64)
Time was wasted during interactive session	11(35)	6(19)	14(45)
Teaching was not focused	5 (16)	9(29)	17(55)
Uncertainty about accuracy of information from colleagues	16 (52)	8(26)	7(22)
Heavy workload on students	17(55)	7(22)	7(22)

Some other studies revealed also some negative attitudes of students toward problem oriented interactive sessions. In China, students reported: uncertainty on the accuracy of the knowledge acquired (80%), time wasted during the session (35.4), teaching was not focused (32.9%), and heavy workload on the students (28.2%) [25]. In a Malaysian study, 27.0% of students found problem oriented class to be very stressful [26]. In Iranian study, students believed that they need longer discussion of the topics [17]. In study done in Hong Kong; students expressed a preference for learning and interacting with teachers than colleagues [27]. In another study done in India, majority of students favored a judicious mixture of didactic lectures and case-oriented problem solving in tutorial classes to be an efficient modality in understanding a system under study [28].

3.1 Limitation of the Study

Small sample size used in this study because each administrative group of students in the target population 6th year students in Hawler College of Medicine comprised 35-37 students and it was not possible to add students to groups. This small sample size may affect the finding of our study.

This study as a quasi-experimental study has a problem with internal validity because the authors have little or no control over many potential extraneous variables any changes observed might just be due to some factor other than the manipulation of the independent variable.

This study is limited to one college; the finding cannot be generalized to other colleges of medicine in Iraq.

4. CONCLUSION

This study shows that effectiveness of small group teaching may depend on the teaching style in small groups and also showed that majority of students have positive attitude toward problem oriented interactive sessions with few negative opinions. Further research is needed on a larger sample of students from different years of study in different subjects for better evaluation of this relatively new teaching method.

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COMPETING INTERESTS

The authors declare that they have no competing interests.

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A Framework of Multimedia Integration Based on Teacher's Perspectives

ABSTRACT

Aims: Teacher's role in multimedia integration is not only a user but also a designer and producer, by which teachers can manipulate more appropriate multimedia aids and fulfill teacher's essential needs. In order for a teacher to promote the efficiency and effectiveness of the technology integration in classroom, this study explores the entire process of teacher designer to integrate multimedia materials and induce a framework based on teacher's position so as to help designers in their integration of multimedia materials.

Study Design: This study is based on the criterion of a qualitative approach.

Place and Duration of Study: Kindergartens in Taichung City, between May 2012 and February 2013.

Methodology: In total, ten kindergartens, twenty-five classrooms, and thirty-two qualified preschool teachers were involved in this study. The selection of the interviewees and the observation classrooms were based on recommendations by the school principals who were more familiar with their own situation in technology integration.

Results: In the end of this paper, we construct a framework of multimedia integration consisting of five main procedures to illustrate how teacher designers are to proceed their journey of integration. This framework provides a proper guide to teachers who want to integrate multimedia teaching aids in their classroom teaching.

Conclusion: Through the application of this model we expect that teachers can easily design the digital teaching aids which are fit for their real needs and allow teachers' teaching to be more efficient and effective.

Keywords: computer integration; teacher's perspective; multimedia; multimedia integration.

1. INTRODUCTION

The highly developing of computer technology allows multimedia information to be presented variously and vividly, and the speedy connection of internet allows people to gain information easily and swiftly. Thus, the application of multimedia technology in classroom is very pervasive and is integrated into different levels of education in classroom teaching. The definition of multimedia is a function of computer system which transmits visual and aural information to user interactively [1]. The idea of integration of multimedia in teaching is to connect different multimedia elements, such as text, image, audio, animation, and video, to create digital teaching materials and to apply it in classroom teaching, which intends to improve the quality of teachers' teaching and students' learning [2]. Many researchers claimed that applying multimedia materials can create many positive effects in classroom teaching. For example, there are researchers indicating that the integration of computer technology helps teachers to build a more visualized and more interactive learning environment in their classroom teaching [3]. Researchers also alerted that various products of computer technology are very powerful teaching tool adopted to achieve powerful interactive teaching, which increases learner's interest and help them to engage intensely in their learning objects [2,4]. Many researches also indicated that the application of computer technology has great potential to increase students' motivation, help learners to connect various information sources, provide opportunities to work collaboratively, and allow teachers to have more time for facilitation in classroom [5,6,7]. As [8] declared, one of the advantages of integrating multimedia is that it allows students to assess the teaching content easily and helps them learn to be more effective.

However, some researchers declared that digital media materials have no direct effect on students' learning achievement [9,10]. According to [11] theory of cognitive load, he declared that human's learning in brain is just like a data processing machine, and the learning achievement is based on how people process and arrange the information. Based on this theory, [12] developed multimedia cognitive learning theory and advocated theories of how multimedia elements influence student's learning effect. They declared that too many multimedia materials or inappropriate arrangement in teaching may cause negative influence on student's learning achievement [13].

Therefore, the integration of multimedia in teaching does not simply focus on how many digital materials are involved in the curriculum but how proper the materials are used. The volume of using multimedia is not the main concern. What we really need to focus on is how to utilize this strong tool to create positive effect in teaching and learning [14,15].

In order to promote the efficiency and effectiveness of the technology integration in classroom, numerous frameworks are constructed to help teachers to involve computer technology in curriculum ably and efficiently [16,17,15]. However, researchers and educators indicated that integrating computer technology into curriculums has not been accomplished well yet. Researchers indicated that teachers have not really integrated digital technology into their classroom teaching but only into their personal documentary work. These developed frameworks or models are too theoretical and idealistic in reality [15] and do not consider the angle of teacher user and teacher designer normally [18]. Even if teachers can understand some principles, design concepts, and standards, they often forgo these principles and frameworks in actual teaching implementation. Therefore, researchers suggest that digital technology integration must take into account of teachers' specific habits of applying technology [19,20,21].

Furthermore, due to the heavy load of teachers' daily routine work, teachers used to adopt the published multimedia materials for assisting their teaching, such as instructional CD-ROM, DVD, or internet platform. However, these published digital materials do not fit teachers' essential needs normally. Teachers only can adopt only limited useful parts of the published materials and strive to reorganize the content. Therefore, the current packages of digital teaching aid do exist with a great gap between teacher's actual need in teaching. On the other hand, it is quite time-consuming for teachers to find appropriate multimedia teaching aids. These have brought tremendous obstacles for teachers in multimedia integration.

To solve these problems, teacher's role should be transformed from user to both designer and creator. Due to the pervasive use of computer technology, teacher's competency of using computer technology has been improved tremendously, and increasing numbers of teachers can operate and design multi-media materials. If teachers can arrange and produce multimedia teaching aids by themselves, the integration of multimedia in classroom teaching will be more effective

and efficient and close to teachers' actual needs. However, from being a user of digital material to being a designer does exist a gap and prove long way to go. For this reason, this study tends to explore the entire process of how teacher designer integrates multimedia materials in classroom teaching and to induce a framework based on teacher's position to help his/her integrating multimedia in their teaching. Therefore, the research question of this study is to investigate what a teacher may experience in the entire process of integration and to clarify various kinds of consideration, difficulty, possible problems, and solution which a teacher designer may meet in his/her integration.

2. MATERIALS AND METHODS

The research method in this study was based on the criterion of a qualitative approach. Teachers' views of how they integrate computer technology and the entire process of how they integrate multimedia material were investigated. Both approaches of in-depth interviews with teachers and observations of the real classroom teaching were adopted. A semi-structured interview technique was adopted as our research interview method was due to the main topics being fixed, although the sequence of our interview question was not necessarily the same for all interviewees, as shown in appendix. All interviews were audio-recorded and the transcriptions were completed on the same day. The classroom observation was implemented with note taking and video recording concurrently by the researcher.

Instead of random sampling, purposive sampling was adopted in this investigation [22,23]. Through contacting and visiting numerous kindergartens which are well known for integrating multimedia materials in their curriculum in Taichung City in the middle of Taiwan, researchers selected the research participants who were more willing and appropriate for this study. In total, ten kindergartens, twenty-five classrooms, and thirty-two qualified preschool teachers were involved in this study. The selection of the interviewees and the observation classrooms were based on recommendations by the school principals who were more familiar with their own situation in technology integration. The period of each classroom observation was at least five days and was supplemented by referring to the teacher's lesson plans. The number of participants was decided by saturation of the researched data, that is, when the informants could raise no more new issues and start to repeat the same

issues as compared with previous interviewees or classroom observation, it may be valueless to collect more data.

Through a series of qualitative analysis steps, the researcher analyzed the collected data systematically from the raw data corpora, generated codes, and built some initial low level concepts; thus gradually we developed some more abstract themes, and then substantive theories were constructed in the final stage [24]. The qualitative analysis of the data helped us to refine and deduce how kindergarten teachers integrate computer technology into classroom teaching, and how they apply multimedia materials to designing digital teaching aids for classroom teaching. These results provided the researcher with various themes and codes to help constructing a substantial model for teachers in their integration of multimedia.

3. RESULT AND DISCUSSION

This study is based on the empirical investigation of teacher's actual use of multimedia in their classroom teaching. This research deeply looks into teacher's considerations, challenges, and struggles when they integrate multimedia into their classroom teaching. The process of designing and making digital multimedia materials was also explored. Through the inductive analysis of the qualitative data, the researcher concludes a framework with 5 procedures for teachers in their integration of multimedia, as shown in Table 1. The sequent procedures are: preparation and analysis, plan and design, detail manufacture, test and modification, implementation and reflection. Every procedure has consideration in detail. The sequence of the identified procedures has a logic connection with the former and latter procedures. These identified stages start from the macroscopic self-analysis to the intermediate arrangement, to the microcosmic practical manufacture, and back to the amendment, and finally to the macroscopic amendment and reflection from user and learner.

Table 1. Significant factors emerge from the analysis

Identify category	
Preparation and analysis	Internal self-analysis (teacher's perspective and attitude of adopting multimedia in teaching, teacher's confidence and competency of using multimedia, and teacher's will of using computer technology)
	Evaluation of external environments (school ideology and policy, school equipment of computer software and hardware, support from school manager, technique aid and consultation, and peer review and support).

Plan and design	Design teaching objective Lesson planning Design teaching activities Searching available multimedia resources
Detail manufacture	Making interface for teacher user Making interface for student user Expression of the contents
Test and modification	Confirm whether it has defect or gap Amend inaccuracies to be proper
Implementation and reflection	Using the digital aids in the classroom teaching Clarifying the feedbacks and suggestions Significant points in the procedure of reflection.

3.1 Preparation and Analysis

In the first stage of the procedure, the researcher concludes that teachers have to do self-evaluation including teacher's internal factors and external factors from teacher's environmental reason. This stage strongly influences whether teachers will actively or passively integrate multimedia into their classroom teaching. If teachers' perspectives of using multimedia in this stage are pessimistic, they tend to decide not to use multimedia as their teaching materials. This stage is much closer to teachers' self-analysis of their motivation of adopting or using multimedia. The influenced factors can be divided into two parts: the internal self-analysis and the evaluation of external environments. The former includes teachers' perspective and attitude of adopting multimedia in teaching, teachers' confidence and competency of using multimedia, teachers' will or motivation to spend time and effort on it. One teacher with a positive perspective declared that:

In fact, I am very interested in multimedia stuffs. When we turn on the computer, it is full of multimedia information. These are very useful materials, and I believe it can bring very positive effect in classroom teaching. According to my observations, students seem to have very good responses to multimedia teaching aids. Personally I am very willing to use or make multimedia teaching materials (T16).

The other teacher with a negative opinion declared that:

I think young children should reduce the stimulations from digital multimedia. They are surrounded by different kinds of digital materials and overused them. I feel it is too early for them to contact digital materials and so on. Habitually I don't use digital multimedia in my classroom teaching because I don't think it can bring any help in my teaching and students' learning (T6).

Furthermore, many teachers believed that their computer competencies were not sufficient and lacked of knowledge and experiences of using digital multimedia so that they might feel anxious for using multimedia. The other consideration was the time consuming. Many teachers claimed that to adopt multimedia materials needs to spend more time in organizing and editing digital materials. To sum up, the above considerations, many teachers do tend to give up using multimedia in their classroom. One of the teachers commented that:

At the time when we were students, multimedia technologies did not exist yet. These new stuffs are what only the young generation can use. To be honest, we cannot use them at all except the easy one, for example, PowerPoint. Our working load in everyday's routine work is already very heavy. To spend more time learning and making multimedia materials for classroom use is not practical and realistic (T14).

Thus, teachers have to experience this internal self-evaluation procedure in the initial stage. They have to overcome their negative perspectives to multimedia and increase their willingness to use it in their curriculum. As researchers have reported, a teacher's computer attitude or computer self-efficacy will decide whether the teacher will adopt computer technology in the teaching [25,26,27,28].

Except teacher's internal factor, there are still many essential external factors which may affect teacher's use of multimedia and which need to be analyzed and examined in the initial stage. Through the analysis of teachers' perspectives in this point, the researcher concluded five external factors which might influence teachers' decision of applying multimedia materials. Those are support from school ideology and policy, school equipment of computer software and hardware, support from school manager (principal or director), technique aid and consultation, and peer review and support. Teachers advocated that once these external factors are supported, they may willingly integrate multimedia into their classroom teaching.

In my school, the policy is to encourage teachers to use and make multimedia materials. The principal has proposed this idea a lot. She thinks it is a future tendency to be digitalized for teaching. Every Wednesday's routine meeting she arranged some teachers who often used multimedia for teaching to teach and share how they have worked in integrating multimedia. I think the equipment for using digital multimedia in my classroom is quite sufficient. Each classroom has a computer and a projector. ...Actually I will not use multimedia materials in my teaching if our school doesn't

support these essential facilitators. Due to the request and advocacy from the school supervisor, we have no option but just follow this order without hesitation to integrate multimedia in teaching (T21).

I think the implementation of adopting multimedia for teachers' classroom teaching was mainly influenced by the school adviser or principal's recognition and advocacy. Teachers normally will not do this work actively. In fact, they are required by their supervisor to use it; for example, teachers are asked to make student's digital portfolio. Every student will have one CD or DVD disk with multimedia elements on it. They have no choice but just have to complete this job (T18).

Researchers claimed that school leader has great influence on teacher's use of computer technology [29]. Researchers also alerted that school-related policies, equipment support, and teacher professional training of multimedia technology have played an essential role for teachers to integrate multimedia in their classroom teaching [30]. Their research also reveals that school policies are often under-developed and underutilized in developing teacher's use of technology in classroom.

Therefore, to be a multimedia user and designer, teachers have to implement self-analysis of their perspective and confidence of applying multimedia in teaching and extinguish whether their external environment has sufficient support. If these considerations were not to reach certain level, teachers might not go forward to the next procedure of integration. If teachers are lack of confidence in involving new technology for teaching after the above considerations, most of the teachers may decide to neglect or abandon this new tool [14].

3.2 Plan and Design

When a teacher's internal and external motivation are satisfied, the teacher designer may have the motive force to move on further. Once teachers have entered the process of planning and designing, there are several points which the researcher has concluded need to be considered carefully. This stage focuses on the design of the whole integrative picture or plan which includes decision of learning objective, arrangement of curriculum and pedagogy, selection of multimedia resource, and methods of integrating into teaching activities. Teachers in this stage need, firstly, to decide their teaching objective, do lesson plan, and design teaching activities which can reach their teaching goals. Secondly, they have to think about what or which

multimedia resources are available, what teacher's ability of editing multimedia is, which activities need to involve multimedia, what place in the activity should involve multimedia, and how to deposit. One of the respondents claimed:

The most difficult part of integration of multimedia for me is how to design and involve multimedia in curriculum and teaching activities. It means I have to decide which place, what kind of, and how to use multimedia in teaching.... On the other hand, we have to consider its essentiality. We use it because we do need it, and we expect it to create good influence on our teaching and students' learning (T2).

As researchers have advocated, the role of using technology is to be an effective and efficient tool but not to be a purpose [31]. [15] coincided that designer has to justify why the use of multimedia is essential, what value or advantage it will create, and how it can support classroom teaching. Thus how to plan and arrange multimedia to be a useful and effective teaching tool is the main task for teacher designers to consider and think carefully in this procedure.

3.3 Detail Manufacture

After teachers have planned the method and strategy to integrate multimedia in curriculum, the next step is to make the idea materialized. In this procedure there are three dimensions which need to be concerned by designers: teacher user, student learner, and expression of the multimedia content. Firstly, we have to consider whether it can be easily operated by user and whether the interface of operation should be too complicated. The inconvenient and complex interface used may cause problems for teachers to their operating. This discontinues teachers' teaching flow and disturbs students' concentration of learning. As what [22] have emphasized in the usability of the technology, the designed digital material has to be operated easily. Even though the content is plentiful and attractive to learner without convenience and ease for user to use, the tool still cannot reach its expected achievement. One of the participants claimed that:

What we hate most in teaching with multimedia is the complicated operation procedure, unfriendly operational interface, or unsolvable technical problems for teachers. For example, when we have to play a video file, we may need to try different driver or need to install new software. To deal with these operative problems causes interruption of my teaching and break student's concentration on learning. Sometimes

the problems may not be solved instantly, teachers are forced to quit the lesson and substitute with other activities (T11).

Thus, a teacher who wants to be a designer has to consider several essential elements in the views of user when they are making digital teaching materials, such as whether it can be operated easily by user, is it too complicated, have we selected the proper computer software, and so on.

Furthermore, a designer also has to conceive the angle of learner including their age, studying grade, learning style, and cognition level, and so forth. For example, the ability of preschool students to recognize abstract script is not sufficient. They need to use more graphic, image, or animation to facilitate their comprehension of the information. In this case, teacher designers can reduce the part of script illustration and add some more digital materials with cartoon characters, which can activate learners' learning motivation and interest. However, some teachers indicated that using too many multimedia materials may cause opposite influence to student's learning effect and efficiency. Designers also have to consider learner's limit in the volume of learning content and time of concentration. One of the teachers has commented that:

As we can usually observe when we play video program or cartoon for students to watch. In the first minutes they are so attracted by the program. Once it is longer than 10 minutes, some students start to lose their concentration, talk to their neighbor, turn their head and look around, or leave their site... Although these digital materials are very attractive to them, we can see that it doesn't always work and needs to be arranged properly (T28).

This point coincides with [13] explanation in the theory of cognitive load. Based on the idea of cognitive load, human being's learning is limited, and too much information and stimulation in the teaching may cause increase of student's cognitive load, which may reduce learner's learning effect and efficiency. Due to the consideration of learner's nature of learning, teachers can avoid the mistake of inappropriate use of multimedia and bring more positive effect to students' learning [32].

Beside, in this stage whether the multimedia has presented the teaching content properly need to be thought carefully. When designers have transformed or manipulated the teaching content into the multimedia materials, they have to check the

completed work to see whether it has missed or deviated from the main teaching stream. As one of the participants' comment has said:

We may choose many digital teaching aids or materials to help our teaching. However, on many occasions, the chosen materials have limited components related to our teaching objectives which can be adopted for actual teaching. Teachers used to put all the materials into their teaching even though these are very slightly related to their teaching objective. Sometimes the published digital materials may contain various subjects. When teachers use it in the unrelated topic, students may lose their focuses easily. Therefore, it is a very essential issue for teachers to spend more time to filter the right materials for their teaching use (T1).

Furthermore, in this stage designers have to consider whether their designed multimedia aids have involved the function of interactivity. The interactivity in multimedia teaching has been emphasized by many researchers [33,29,34]. The interaction of multimedia can be classified into four types: learner-instructor, learner-content, learner-interface, and learner-learner [35]. In this stage the researcher emphasizes the interactivity between instructor-content. Except teacher's teaching pedagogy has to be interactive, the interactivity between teacher and multimedia plays an essential role in facilitating teacher to teach interactively. One teacher commented that:

Traditionally, the idea of multimedia integration is alone to play video or animation with CD-ROM driver and have very little interactivity between the teacher and the students. Nowadays, the technology of multimedia has been developed swiftly and can allow designer to develop the interactive function for user to operate. For example, on the operational interface, it increases the controlling function, such as pre-page, next-page, pause, back to the main menu, hyperlink click, etc. These interactive controlling functions allow teachers to operate more fluently and create more opportunities for them to teach interactively (T22).

Moreover, the expression of multimedia teaching aids usually consists of several multimedia elements [2], such as the electric picture book involves still images and words, and the animation of picture book involves the element of words, images, animations, and auditory effects. Thus, in this stage teacher designers have to decide what multimedia elements are appropriate to be applied in their work, and they also

need to choose what multimedia software is more convenient to be operating and can create the best effect.

3.4 Test and Modification

When the first edition of the multimedia is completed, we will go to the next stage of check and modification. Before we start to use the completed work of multimedia teaching aids, it is very essential for us to confirm whether it has defect or gap and to amend those inaccuracies to be proper. As one teacher has mentioned:

According to my personal experience, when we check the first edition of the completed digital work, we usually find some gaps or defects in the original design and this may be far from our initial expectation. This is because the problems or difficulties appear only when we are dealing with the details. Therefore, it is very necessary to go back to the original idea, check the present work, and then do the proper modification (T26).

In this stage, teacher designers usually need to go back to the second and third procedure of the entire process to investigate all the details about whether the designed multimedia has fulfilled our teaching needs. These may include whether the content of the multimedia can reach the teaching objectives, the digital materials are convenient and easy to be used, the expression of multimedia materials are artistic and can create student's learning interests, and the arrangement of the sequence and time are suitable and allows learner to obtain the best learning effect. This process can be completed through peer review, by which teachers or school supervisors estimate and conceive what possible results may be caused, what aim the multimedia may reach, and then what modification may be done. Once they discover the fault, the designer may need to go back to the second procedure to reorganize or the third procedure to remake until the final check has been completed in this procedure, and then we can apply it practically in actual teaching in the next step.

3.5 Implementation and Reflection

When the former process of modification has been completed, the next step is to implement. The completed multimedia aid was used to the classroom teaching practically, and the feedbacks from teachers and students will be collected in this

stage as well. The feedbacks from teacher's teaching, student's learning, and peer review have to come back to the designer. Through clarifying the feedbacks and suggestions, teacher designers can inspect their work and accumulate more experiences of multimedia integration. This process of reflection not only can help designers to correct the defect at this time but also help to avoid making the same mistake in the future integration. It also offers an example for other teacher designers to refer. One teacher commented that:

When I was using multimedia to help my teaching, I could always uncover what was missing, what was lacking, and what was not proper. Through few times of experience of integration, I improved a lot and have less confusion and obstacle now.... Our colleagues do learn from each other. In Wednesday afternoon we have a routine meeting. We used to share our work with using multimedia to other teachers and check others' work, too. We got the experiences and suggestions from colleagues' checking and reflection (T9).

The reflection may consist of various aspects: school policy, teacher's individual motivation to the practical design, detail manufacture, and the implementation in the classroom teaching. The following list concludes the significant points in the procedure of reflection, which contains the aspects of multimedia factors, pedagogies, teaching objectives, and facilitation from school.

- Whether the software and hardware equipment or facilitation are sufficient?
- Have the school policy or school supervisor supported adequately?
- Whether the teaching activities with multimedia aids can help to achieve the teaching objectives?
- Whether the multimedia technology can effectively assist the process of activity teaching?
- Whether we have better substitution to replace the present way of using multimedia in teaching activity?
- Whether the application of multimedia material has been arranged properly so that it helps students to achieve the best learning effect?
- How to construct the multimedia teaching aid efficiently, usably, and artistically?
- Whether the designed or used multimedia materials are fit for the learner's learning character?

3.6 A Model of Integrating Multimedia in Classroom

Based on the above analysis and discussion, a model of multimedia integration can be constructed based on the views of teacher designers and the process they have to go through, as shown in Fig. 1. The model consists of five main procedures and links up a dual funnel form to unfold and connect their relations in the process of multimedia integration. This model illustrates how a teacher designer proceed his or her journey of integration from the macroscopic view of applying multimedia to the microscopic detail manufacture then comeback to the macroscopic view of modification and reflection.

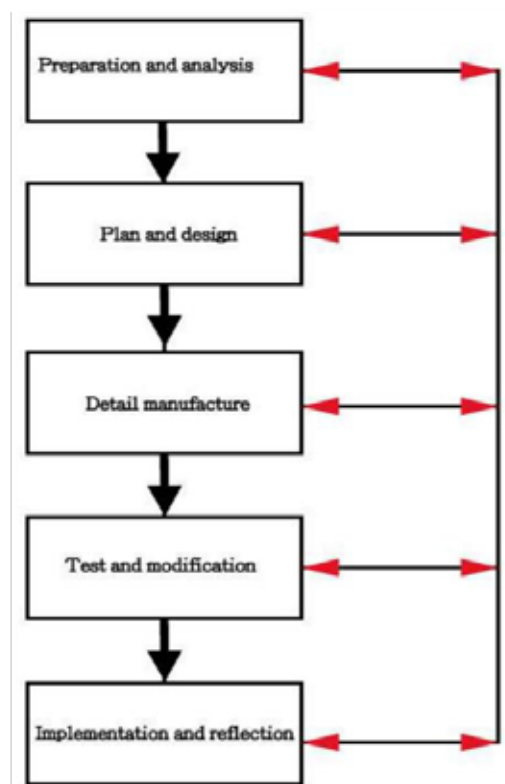


Fig. 1. A model of integrating multimedia

In the initial stage, teacher designers need to do the superficial self-analysis in some aspects and to do the initial preparation for their decision of multimedia integration. The self-analysis includes teacher's subjective perspective and will of using multimedia and the objective evaluation of the environmental support. The result of the self-analysis in this stage may influence teachers' motivation of continuing to apply multimedia materials in their teaching. When they have experienced the macroscopic analysis stage, they enter into the plan and design procedure. In this stage, designers narrow down their vision to the curriculum arrangement and

strategies of integration, and they have to plan where, how, and what the multimedia can be involved in the teaching activities. The followed procedure is to go into the process of detail production. Teacher designers have to focus on doing every single multimedia component, which needs to consider various points of view from the user and learner so that the way of multimedia content can be expressed. Once the digital multimedia is completed, it still needs to be tested and modified. In this stage, teacher designers need to pull their views back to the higher stance, examine whether the completed multimedia aids are proper to be used, and then adapt it again. When the modified multimedia teaching aids are first implemented in the classroom teaching by teachers, these aids may not be used perfectly at this stage. User, learner, and teacher designer may reflect some deficiencies or suggestions. Therefore, designers need to push themselves to a deeper and broader viewing angle and conceive every procedure of the multimedia integration carefully. Through this reflection procedure teacher designers can find out the apt way to improve their integration and accumulate more experiences to help their next multimedia integration to be more effective and efficient. Every procedure in the model is reversible, which can go back to the previous stage to do examination and modification.

4. CONCLUSION

Technology integration in classroom teaching has been a trend, which is not possible to be reversed [16,17,36]. However, the present published multimedia materials are difficult for fulfilling individual teacher's needs, so teachers cannot always rely on the existed baggage of digital materials. Teacher's role in multimedia integration is not only a user but also a designer and producer, by which teachers can manipulate more appropriate multimedia aids and fulfill teachers' essential needs. Only few models of integrating multimedia or computer technology are based on the stance of teacher and on the analysis of the integrating process. In this paper, the researcher constructs a framework of multimedia integration based on teacher designer's perspectives of designing multimedia teaching aids and the integration of digital teaching materials in teaching. This model describes an entire process of how teacher designers construct an integration of multimedia in their teaching. This model also provides a proper guide to teachers who want to integrate multimedia teaching aids into their classroom. Through the application of this model, the researcher

expects that teachers can easily design the digital teaching aids which are fit for their real needs and allow teachers' teaching to be more efficient and effective.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX
Questions of Semi-Structure Interview

1. What is your perspective of using multimedia technology in classroom teaching?
2. What are your considerations before you decide to involve multimedia technology in your teaching?
3. Could you please tell us what challenges and obstacles you may have to face when you integrate multimedia technology into classroom teaching?
4. Could you please share with us how you manage and arrange multimedia technology in your classroom teaching?
5. Could you tell us what the main concerns are when you are making multimedia teaching aids?
6. What are the students' responses after your teaching with multimedia technology?
7. What is the reflection of your integration of multimedia technology in classroom teaching?

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Homework: An Interface between Home and School. Is it a Myth or a Reality in Rural Zimbabwean Primary Schools?

ABSTRACT

This research examines the functionality of homework in rural Zimbabwean primary schools. The research acknowledges that, whereas homework is intended to extend the learning from school to home for the benefit of learners, in reality, is this happening in rural schools where a number of parents and guardians are either lowly educated or economically disempowered? The intended collaborative effort between teachers and parents does not seem to be working out well in some of the schools. Where this partnership is disfunctional, what is the likely effect of homework on learners? This research, therefore, examines the functionality, or lack of it, and the net-effect of homework on both the learner and the teacher. Inherently, the research also looks at the attitudes of rural parents and guardians towards the perceived roles they are supposed to play in homework management. A parent in this research is defined as the biological parent or legal guardian; the person legally entitled to custody of a learner or any person who fulfils the obligation towards the learner's schooling [1].

Keywords: homework; accountability; collaboration; quality assurance; partnership; rural.

1. INTRODUCTION

The idea of homework is premised on the understanding of the need to ensure that learners in schools are getting the best help they need to succeed in their education. The concept of homework is based on the belief that it is the duty of the identified individuals in schools and society whose role should be supportive of

learners to help them in their educational endeavors. Research indicates that family-based learning influences the effectiveness of school on a child. It may be a significant factor among the complex forces associated with inequality of educational opportunity that may push up learners' capacity to endure the demands of schooling. Pollard and Bourne [2] note that if most of a child's education happens outside school, especially in the home, and if parents are co-educators of the child with teachers, then it seems logical to make the two elements of school learning and home learning compatible, and for teachers to use that home learning as a resource. Homework, therefore, is (or should be) an organized and collaborative activity involving the school and home aimed at improving the performance of learners. Children need someone at home who will offer them encouragement in their schoolwork, understand their strengths and limitations, and be aware of what they are studying [3]. If homework were meaningfully implemented it could prove an important ingredient for experiential, learner-centred learning since conventional classrooms don't contain the kinds of real-life resources we need to link school learning and life [4]. This paper, thus, examines the meaning and function of homework within the context of education. The aim is to check whether the implied values of homework are being realized in rural primary schools in Zimbabwe. The world over, educators, policy makers and researchers are increasingly recognizing school, family and community partnerships as important for student success [5]. The question in this research therefore, is whether this partnership does exist in rural primary schools in Zimbabwe.

2. RESEARCH QUESTIONS

This research attempted to answer the following research questions.

1. Do schools have homework policies?
2. Is homework set and managed effectively?
3. Are responsibilities of the student, the parent and the teacher clearly outlined?
4. Is marking and feedback consistently done in line with the school's marking policy?

3. CONCEPTUAL FRAMEWORK

The concept of homework is premised on the need for accountability in education. According to Maurice Kogan [6], accountability was traditionally viewed as a duty to render account of work performed to a body that has authority to modify that performance by the use of sanction and reward. For Sallis [7]; Wessels [8], however, accountability in this era is seen as a requirement to have one's work tested, debated and judged within some more or less formal structure. Success may not necessarily be rewarded or failure punished in the true sense of these terms, but there is an implied obligation to give reasons for actions taken as a way of reviewing outcomes and to submit to judgment on the performance in all the circumstances of the task which one accepts as own. In other words, even though there may not be outright material rewards or observable punishment for teachers (and parents) regarding the outcome of children's learning, there is an implied demand for accountability. Accountability as a concept refers to a process of providing information to others, enabling judgment to be made about the extent to which the school is responsive to the needs of students, the local community and society at large (Coldwell and Spinks in Thurlow, Bush and Coleman) [9].

Accountability is a concept that hinges on quality assurance. Quality control presupposes that a product or service is going wrong but quality assurance prevents it from going thus (West – Burnham in Thurlow, Bush and Coleman) [9]. Quality is defined in terms of customers needs rather than those of the suppliers. Thus, in education, quality is defined in conjunction with educational needs of learners than teacher needs. Martin [10] notes that, accountability systems drive academic work and learning just as surely as assessment systems drive student learning. Homework therefore, is driven by the teachers desire for partnership with parents to be accountable and realize quality assurance in education.

The high demand for teachers to be accountable for the students success has led to questions on fairness of such charge. Of significance is the outcry that once learners leave school, teachers have no control over what they do or not do. As noted by Sallis [7], how can we demand "accountability from teachers only when even research has shown that home support is essential to a child's success? After all, for rural day schools in Zimbabwe, children spend the greater part of their lives at home than at school. In this case, the home needs to play a complementary role to

augment teachers efforts. Teachers therefore, should demand home support in their endeavor to realize quality assurance.

Homework is a call for teachers and parents to exercise accountability towards the learners. In the accountability framework, there are various agencies who seek to monitor the quality of the outcome. These include school inspectors, heads of schools, departmental heads, the learners (who are the silent and indirect monitors), parents (who play a double role of instructing and monitoring) and the school authorities.

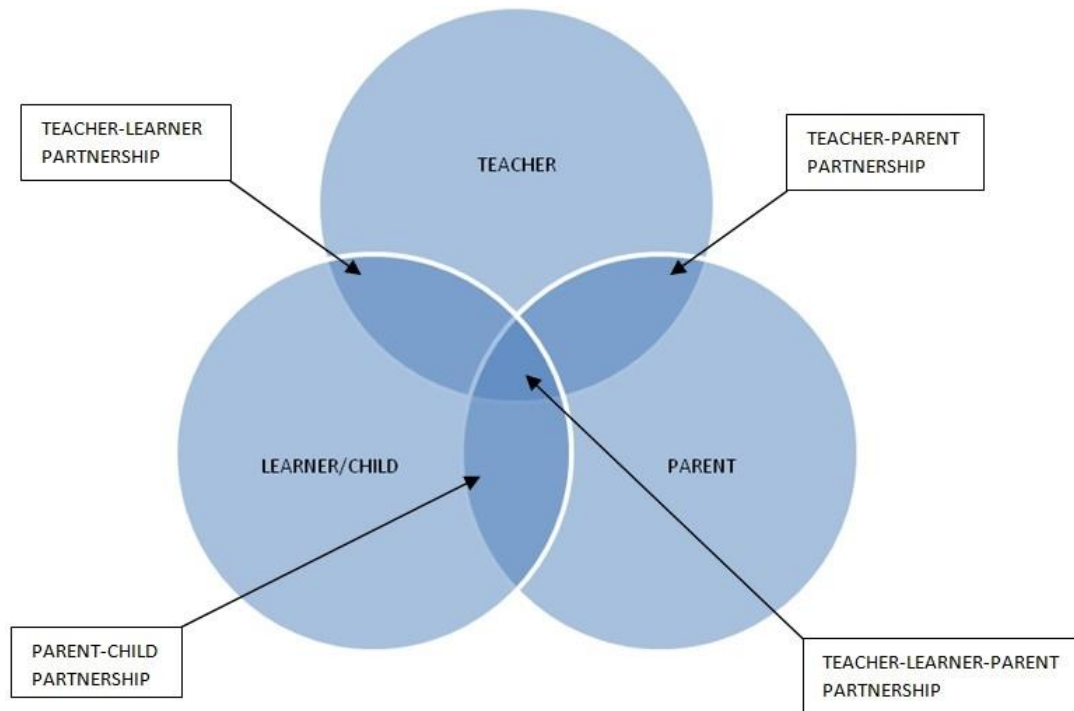
3.1 Homework

Homework is a widely used but also one of the more controversial aspects in the education system [11]. Homework itself can be understood to be an out-of-class activity that is used as an extension of classroom work. LaConte [11] identifies three main types of homework, i.e. practice assignments to reinforce newly acquired or taught skills or knowledge, preparation assignments to provide background to particular topics, and extension assignments designed to practice learnt material or just to encourage learners to do more research. It can therefore be observed that homework is purposeful and goal-directed.

One can argue that homework calls for collaboration between teachers and parents for the purpose of creating a permissive environment that promotes acquisition and learning. In this regard, there should be greater co-operation between teachers and parents. Homework, it shall be argued, fosters a sense of common purpose for teachers and parents. In this way, teachers and parents become natural allies who share the common goal of wanting to assist children to develop their full potential [12]. In other words, homework is a concept that calls for parents to be partly accountable for the learning of their own children. After all, they choose schools for their children and therefore should take an active role in educating them. The school and families have not always shared the same perspectives on what is needed in the child's best interest [1]. Homework should play that role for teachers and parents to realize the need for collaboration. Homework creates partnerships that can be diagrammatically presented as shown below.

The framework presents a tripartite relationship that exists among teachers, learners and parents. It can be noted that homework acts as the inter connector in the threesome relationship so created to raise the learners educational standards.

The collaborative framework for teachers-learners-parents partnership



The teacher assigns learners (teacher-learner partnership) to some homework, so designed to achieve set targets. In turn, the learner takes that homework home where he/she enlists the assistance of the parents or caregivers (parent-child partnership). The parents, in the advent of homework, are expected to play a triple role. First, they should necessarily create conducive environment where learners can concentrate on their homework, i.e. quiet and uninterrupted places. Secondly, parents should also provide relevant materials for learners to carry out their research. Thirdly, parents should also monitor and assist learners during homework. Their help need not be giving answers to learners but helping them to arrive at the correct answers. One wonders how much of our rural parents understand the philosophy behind homework? Can our rural parents meaningfully play this role? Is it not possible that some may simply work out the answers and give to the learners in the mistaken notion that this is what is required of them? Wolfendale [13] notes that some parents ways of assisting their children lack the necessary grounding in teacher professionalism hence may even jeopardize their children's learning. In some cases also, some teachers fear that allowing learners parents to take part in educational instruction undermines their professionalism. To avert these possibilities, there is therefore need for arents

and teachers who teach their children (teacher-parent partnership), to occasionally meet and share ideas on how homework activities should be managed. In the homework framework above, this is where parents and teachers need to meet outside the learner's presents. Such occasions afford them time to share the problems they may be facing and thus strategize their activities. In cases where problems may persist, then the three (teacher, parent and learner partnership) should come together to try and rectify the problems affecting homework. In this regard, it is doubtful that such is happening in most of our rural schools. It would seem that teachers are closed in their own world of school business is school business and likewise, parents in their teaching is for teachers, why do they (teachers) want us to do their work? Unless these problems are meaningfully addressed, the concept of homework may remain a ritual with very little returns. Where it is dysfunctional, homework can become tortuous for the learners. Teachers need to think carefully about what kinds of teaching and learning are best done in class, and what is best done in the community (either in groups of learners or through independent learning) [4].

One can also note that most rural homes in Zimbabwe are characterized by low incomes making it difficult for parents to provide the necessary ingredients that are vital to the success of the homework system. What more with some parents having received very little or no education! This researcher is aware of some parents who do not seem to care about their children's learning. There are also others who are at times overwhelmed by stressful life-events, and whose own experiences of schooling were not positive enough for them to overcome fears and anxieties about school and teachers [13]. Coupled with that are the realities of rural areas in Zimbabwe where manual work is the mainstay for survival. Very few parents resist the temptation to send these children on family errands or assign them to some manual work without any allowance for these children to do their homework. Some of such parents believe that their children should have done their work when they were at school. The fact that they are bringing work home might be misconstrued for negligence at school where, parents would believe, they should have completed their work. Included in the parent population are also grannies looking after children left in their care when the parents succumbed to AIDS. To what extent can these grannies help with homework? The problems identified above call for greater planning. For homework to work

positively, it is necessary to provide the required preparation, learning resources and facilities and the parent education regarding homework-management [4].

Notwithstanding the challenges shown above, homework still forms an essential part of education and it gives our pupils the chance to practice, consolidate and extend their knowledge and skills in their education [14]. Macbeth [15] sees home-based learning as corollary to school-based learning within a compact alliance characterized as mutual information exchange. Exercising schoolwork at home bridges the dichotomy between the school curriculum and knowledge that resides in the family. As Muijs and Reynolds [11] note, if managed well, homework has the potential to yield useful results. Homework can lead to better retention of facts and knowledge, increased understanding, improved critical thinking skills, improved information-processing skills and the possibility of extending the curriculum. In addition, better study habits, positive attitudes towards schooling and studying, and learning beyond the school walls are some of the long term benefits of homework. In the long run, the process would ultimately develop autonomous problem-solvers who are self-directed and motivated. What is of essence is meticulous planning of homework that persuades parents to move away from their protective model [16] where they tend to abrogate the responsibility of the education of their children to teachers. Parents should be shown reason and benefits of their involvement. The nature of parents and the form of assistance they can offer should be matched to ensure that even the grannies would have something positive to contribute in the said partnership. Homework should also be well planned to avoid burn-out in learners which may lead to lack of interest, cheating and possibly copying of work from the able ones. Quantity and concept load should not play the devil's advocate leading to discouragement of learners.

For homework to be effective, it must adhere to a number of principles [11] i.e. not to use homework as punishment, that the teacher should mark homework and provide immediate feedback, that the feedback should be in the form of instructional feedback rather than simply grades, that homework should be integrated into the themes studied, that it should reinforce major curriculum concepts, and that if homework is not completed there should be consequences attached to that to avoid non-compliance in future.

4. RESEARCH METHODOLOGY

This research collected both qualitative and quantitative (mixed methods) data about teachers' perceptions on homework, about parents' views regarding the same and about primary school learners' views on the administration and management of homework. Greene, Caracelli and Grahmann [17] identify five main purposes of using a combination of methods, namely: triangulation; complementarity; development; initiation and expansion. Through the mixed method, it was hoped that triangulation, a process in which multiple forms of data are collected and analyzed [18], would help check on consistency of answers given by respondents.

Marshall and Rosseman [19] say qualitative research is pragmatic, interpretive and grounded in lived experiences of people. Qualitative research is very useful especially where the data are in the form of people's worlds [20], views and perceptions. In other words, qualitative research, allowed the researcher to get inner experiences of participants [21]. In this research, a mixture of the survey and ethnography was employed. Surveys provide a snapshot of how things are at a specific point in time [22]. In other words, the survey design was very useful in providing information about the current state of affairs regarding homework in the selected area. As for the ethnographic approach, the portrayal of an insider's perspective, in which the meanings of the social action for the actors themselves (teachers, parents and learners), was paramount [23]. For that reason, qualitative data was collected to understand clearly, the feelings and views of participants. Their reasons for given actions could thus be understood from their own explanations. Quantitative data, on the other hand, was collected from teachers regarding homework and its management. This helped the researcher to check on the extent and the spread of use and/or abuse of homework.

4.1 Sampling and Collection Procedures

In total, 4 schools were visited out of the eight that make up the Njelele Primary Schools Cluster. Twenty (20) primary school teachers from the four sampled schools from a total of forty-eight (48) in the cluster (41.7%) took part either by completing the questionnaire or being interviewed. These (teachers and learners) were selected using the randomization process where the ballot system was employed. Of the 20 teachers who took part, 10 were interviewed. As for the learners, 20 were randomly

selected from the sampled schools for interviews. On the other hand, 20 families were purposively selected for home visits. These were selected using purposive sampling to ensure that they were the same families from where the interviewed learners came from for comparability of the results. Any of the available parents of the selected families was interviewed. Data collection was done using the questionnaire and the interview. In all cases where interviews were held, the researcher made field notes to preserve data for analysis.

4.2 Limitation of this Study

It is worth noting that this research was confined to Njelele Primary Schools Cluster which has a total of eight schools. Results, thus, need to be understood within the context referred to as characteristic of schools making this cluster.

5. RESULTS AND DISCUSSIONS

The results presented below were collected from the sampled teachers, parents and learners. The schools visited and individuals interviewed are referred to using codes for ethical reasons. The four schools visited are SPS, ZPS, GPS and MPS and are all rural day primary schools in Gokwe South District in the Midlands Province in the Njelele Primary Schools Cluster that has a total of eight schools where four were sampled. Five teachers from each of the four schools took part giving a total of twenty teachers.

Data collected through the questionnaire are presented in form of tables, a graph and pie charts for analysis and interpretation. Qualitative data was preserved in field narrative reports. Data was collected between the months of November 2011 and March 2012.

The demography details of participants indicated that the age range of teachers was 25-60 years. The sample comprised of 13 (65%) females and 7 (35%) males. Years in service ranged from 3-28 years. Of the twenty teachers, 9 (45%) had Certificate in Education and 11 (55%) had Diploma in Education. As for their highest academic qualification, 13 (65%) had Ordinary level, 2 (10%) had Advanced level and 5 (25%) had a Bachelor of Education (Primary) Degree. As for learners, their age range was 8-12 years. These were drawn from Grades 4-7. Interviewed parents

were aged between 21 and 80 years. Interviews with parents were conducted in Shona (Interviewees L1).

Table 1 below presents data collected from teachers through the questionnaire. Reasons for agreeing or disagreeing are also presented in the same table against the questions that so demanded. In this way the qualitative nature of their answers were provided.

The findings, as shown in Table 1 question 2 below, indicate that the majority of the schools visited (75%) did not have any policy on homework leaving teachers to employ homework anyhow. In the absence of a school policy on homework, each teacher plans and executes such tasks based on his or her own whims. Also, 75% confirmed that they neither held any meetings (question 7a) over homework nor any consultations (question 8a) over learners school work with their parents. None of the participating teachers discussed with parents how to manage homework (question 8c). Most of the interviewed parents did confirm that there was no such provision. The results confirm the fear the researcher had that the homework system may not be achieving its intended results in some rural schools. Where there is no shared vision and responsibilities (teacher and parent), then homework may not achieve what it is intended to achieve. A high percentage of teachers (65%) confirmed that they did not even know who specifically assisted their learners with homework (Table 1 question 4). None (100%) of the participating teachers had any homework management plan for learners staying with illiterate parents/guardians (Table 1 question 10).

Table 1. Teachers views on the use of homework (N=20)

Qs No.	Themes	Yes	%	No	%	Reason/Explanation
2	Any school policy on homework?	5	25	15	75	
3(a)	Do you assign homework to your learners?	20	100			
3©	Homework in which subjects?					3(d) - Practice - Improve their standards - Further their learning
	English	20	100			
	Mathematics	20	100			
	Shona	10	50			
	All subjects	5	25			
4	Do you know who assists your learners with homework?	7	35	13	65	
7(a)	Any meetings with parents over homework?	5	25			7(b) Once a year during prize giving
				15	75	Never meet parents over homework

8(a)	Do you hold consultation days?	5	25	15	75	8(b) Once a year
8©	Any discussion of homework management with parents?			20	100	
9	Is homework helpful?	18	90	2	10	- Yes for some Not really for weak learners
10	Any homework management for those with illiterate parents?			20	100	- They have to look for help from their neighbours

The researcher decided to statistically test the level of difference for questions 2, 4, 7(a), 8(a) and 9 shown in Table 1. The excel programme was employed to calculate the t-test using 2 unequal variance where the 'Yes (X value) and 'No (Y value) were tested for significant level of difference on teachers perceptions regarding the value of homework.

The following questions were statistically tested on teachers' perceptions regarding the value of homework.

	Yes (X)	No (Y)
2. Any school policy on homework?	5	15
3a. Do you assign homework to your learners?	20	0
4. Do you know who assists your learners with homework at home?	7	13
7a. Any meetings with parents for homework management?	5	15
8a. Any consultation days with parents?	5	15
8c. Any discussions on homework management?	0	20
9. Is homework helpful?	18	2
10. Any homework management plan for those with illiterate parents?	0	20
t - computer calculated value (EXCEL) for unequal variance	t-calc. =	0.379586
	=	0.38
Significant level of t at 0.05 and 12. $0.05 + 2 = 0.025$ with 12 degrees of freedom Critical value (observed) = 2.179 i.e. 2.18 to 2 decimal points Conclusion: Since t calculated falls within the acceptable range we fail to reject H_0 and conclude that there is no significant level of difference.		

In-view of the interpretation of the *t-test* result above, the notion that there is a significant difference between those who agreed and those who disagreed with the expressed views is not supported. However, it should be noted that this could be a result of a small sample that was used for this research. A similar test could be done with a bigger sample to find out whether the result remains the same. The qualitative data in this research though suggest that the lack of proper homework management

noted is in fact only a tip of an ice-berg. Perhaps with more research in this area the state of affairs will become apparent.

Fig. 1 below shows that 26% of the interviewees (parents) were illiterate. The question is what role do these parents play in homework management? Are they even aware of the positive impact they can play in their children's learning?

The research, however, established that homework was being assigned (100% in Table 1 question 3a) notwithstanding its quality and manner of management. 90% of the teachers participating in this research confirmed that they believed that homework was quite helpful (Table 1 question 9). This belief was confirmed by 75% of teachers who assigned homework 3 times a week while 25% assigned twice a week (Graph 1). The research also established that the subjects for homework are English (100%) and Mathematics (100%). These are subjects that have tended to be popularized in the ordinary level certificate in Zimbabwe and are quite determinant in terms of further education beyond ordinary level or employment. This could explain why homework at this level has tended to be concentrated in these areas. Interviews with selected learners revealed that indeed the majority of teachers were assigning homework. There were fewer cases where both learners and parents confirmed that learners were not assigned homework. There was a worrisome discovery that was noted from some learners who never brought homework. These learners noted that they were required to complete all their homework at school during the tea and lunch breaks or after lessons in the afternoon. By the time they left school in the afternoon they were required to submit the work. Asked as to whether teachers assisted with the homework during such times, none of the interviewees indicated getting such assistance. This researcher was at a loss whether to call this homework or just extension work because of the way the work was organized. When this was checked during interviews, one teacher did confirm that this was happening in some schools. The teacher insisted calling this homework. She noted, *"This is homework because the pupils would be working on their own after lessons (perhaps showing varying perceptions on homework). Even if they took the work home most parents won't be able to assist them. They don't know how to complete the work"* (Interview 5, 2 February 2012: Name code, Teacher SKA). Interviews with parents confirmed the claim by this teacher. Interviews with parents were held in the medium of Shona which is their L1. Some parents were not educated and indeed confessed that they did not

know the answers to the school work that their children would be working on. Included in this group were the grannies, the illiterate and some who were merely schooled but not really educated. What became apparent in these interviews was that most parents were unaware of the various ways they could contribute in homework management. Some parents also felt that they were too busy to spare time for the learners. In their views, learners were best served by teachers at school so that when they came home they would assist with home chores and in the fields.

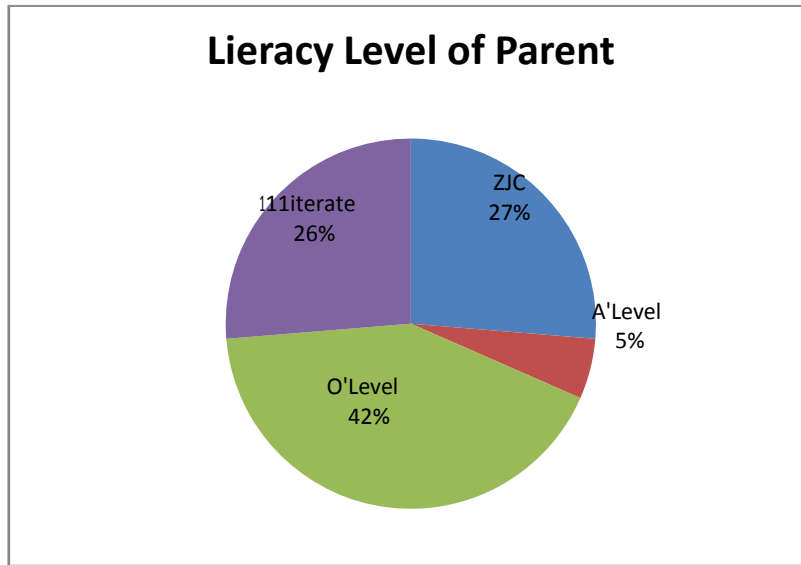
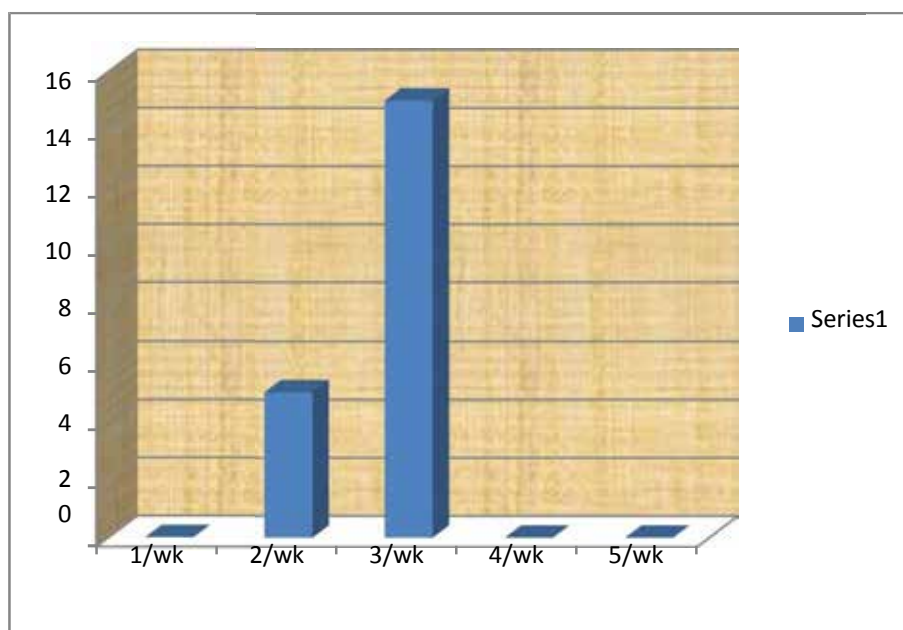


Fig. 1. Showing literacy level of parents

Another variety of the 'homework' mentioned (This researcher did verify this issue) was given in the form of morning work. For instance, at school GPS, the researcher discovered that Grade 5, 6 and 7 learners had to arrive at school at about 0645 hours in spite of the fact that their school day was timetabled to start at 0800 hours. This was to enable them to complete the said work which was due when lessons started at 0800 hours. In spite of the good intentions of teachers, this may need to be examined in the context of the net effect on the learner. Some of our rural students in Zimbabwe walk for distances that are up to 10 kilometers to school.

It is prudent at this point to note that a comprehensive homework programme should examine closely the kinds of cooperation that should exist amongst teachers, learners and parents. A comprehensive teacher-learner-parent partnership should necessarily look at the nature of homework management to ensure that each parent (depending on his/her capacity) makes a positive contribution. This could be in the form of creating conducive environment for learners to concentrate on their

homework, provision of materials (e.g. reading and writing materials, pens, pencils, adequate lighting etc.) and other basic needs that may have indirect effects like the Maslowian basic needs. Parents should also create appropriate time for children to do their homework. Their demand for learners to assist with work at home and in the fields should be balanced with the need for learners to do homework in an environment that allows them to meaningfully concentrate on the task.



Graph 1. Showing frequency of homework per week (Qs 3b: How often do you give homework to your learners?)

Table 2 below presents findings regarding how the homework was treated. The researcher felt it important to establish this because of its capacity to either encourage or discourage learners thus affecting learners future treatment of homework. Findings reveal that 40% of teachers marked and provided feedback to learners. 35% allowed learners to mark their work whilst the teacher gave answers and 25% revealed that learners exchanged and marked each other's work whilst the teacher gave answers. This researcher believes that the teachers who marked homework and provided feedback to learners may indeed positively propel the learners endeavours provided the feedback was not in form of just marks without incisive comments that are in form of instructional feedback [11]. The problem with learners marking each other's work is that there is no guarantee that the marking would be accurate neither will there be instructional comments. It is also doubtful that the teacher would later check all books for accuracy in the marking. In such a situation are we not likely to reinforce incorrect

answers? Despite the fact that none of the teachers revealed that some teachers did not assess the assigned homework, interviews with learners did reveal that some teachers never looked at the assigned homework. This researcher did examine some homework books as follow up to the claim by some learners. Indeed the exercise books revealed that some teachers did not bother to look at the work. This researcher was at a loss as to why these teachers bothered to assign the homework? One learner claimed that her teacher would ask them to display their homework and those who did not have the work would be beaten. The issue just ended there, the homework would thus be left unmarked.

It can be noted at this point that there is need to come up with clearly defined objectives for every piece of homework that teachers assign learners to. A clearly defined work plan and management process of the work should be put in place to ensure that homework contributes meaningfully to the learning process. Homework should not be a ritual whenever and wherever it is employed. Improperly done homework can create negativity in learners and once that happens then it would have lost its value.

Table 2. Treatment of submitted homework (Qs 5: What do teachers do with submitted homework?) (N=20)

Qs No.	Treatment of submitted homework	Frequency	%
5	Teacher marks it and gives feedback	8	40
	Learners mark their work as teacher gives answers	7	35
	Learners exchange books and mark each other's as teacher gives answers	5	25
	Leave it unmarked and move on to new work	0	0

When learners were asked about what happened with those learners who failed to present their completed homework on time various answers were given as shown in Table 3 below.

25% revealed that their teachers send non-compliers to the head's office for canning. 35% said their teacher punished the offenders and according to the learners this was usually in the form of canning. Interestingly, 40% sent such learners out and were only admitted back into class once the work was completed. What this researcher could not establish was whether the completed work would be checked for accuracy before readmission or simply that the learner had written something. The researcher notes that the problem with this form of punishment is that such learners may be losing much more than the value of the homework itself. Although none of the teacher respondents did reveal that some teachers simply ignored the assigned homework, learners revealed that some teachers simply 'forgot about the work and

never bothered to check on it. One wonders why assign the homework in the first place. Given this scenario where learners see no value in homework the likely effect is that they may not put their mind to it. Also significant in the results in Table 3 is to assess the impact of the type of punishment meted on those who failed to submit homework. One may ask as to which methods are likely to reinforce homework in future and which are likely to create negative evaluation of homework by learners? The punishment for offenders should at the end of the day propel learners into doing their homework positively in future. Learners must have a positive view of the process. The process should create a self-belief image in learners. In that way there would be a possibility for learners to do the best they can and possibly look for help where need be. This of course would work if the home-school linkage is soundly planned for to ensure that learners get assistance both at school and home.

Table 3. Treatment of non-compliance in homework (Qs 6: What happens with those who fail to submit homework?) (N=20)

Qs No.	Treatment of non-compliers	No	%
6	Sent to the Head's office for canning	5	25
	Teacher punishes them	7	35
	The teacher sends them out of the lesson to first 8 complete the work before readmission into	8	40
	The teacher ignores it lesson	-	-

Effective planning of homework needs also to take into account the nature of the parent/guardian. The manner of assistance needs to be matched with capacities that helpers at home are able to provide. Fig. 2 below reveals that among the parents who took part in this research were grandmothers (20%). Some of them were illiterate and others advanced in years. Teachers need to be decisive in terms of what form of assistance they can render. Fig. 2 also reveals that 25% of participating children came from extended families (uncles and aunts owing to the deaths of their biological parents) and the set up in the majority of cases, in the view of this researcher, did not seem to create supportive environments. This is not to say this is the case with every family of this situation. In particular, 2 cases of the visited homes were particularly disturbing for the researcher. In both cases, the two children did not even have adequate exercise books for daily exercises let alone homework books. They seemed to be overloaded with home chores. Claims of absence of proper environments for school work by the two children were not, however, confirmed by the guardians who were not interested in talking about their surrogate children. From an outsider's perspective these homes were not properly framed for educational work. There was also a case of a child headed family where a 16 year old boy (Interview 8, 11 February

2012, name code Parent MN) looked after his siblings owing to the death of their parents. There was collaboration between the siblings and the boy regarding his assistance with homework. This researcher, however, notes the burden of providing for the siblings as cause for worry regarding the extent to which he could assist with homework. These are cases that require teachers to seriously consider, and indeed make provisions for when they give homework.

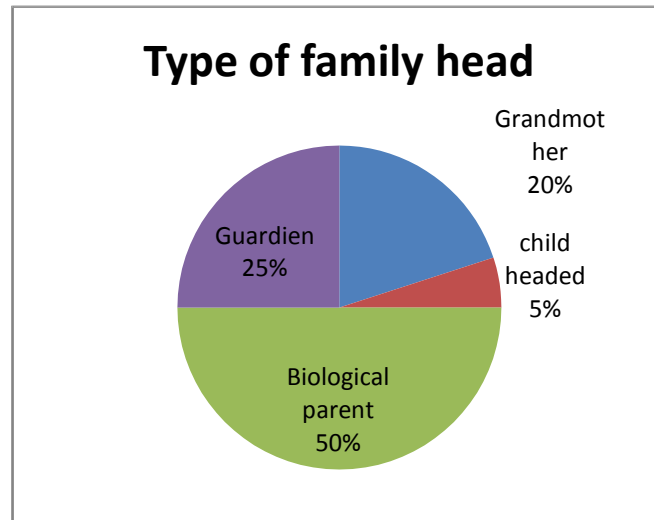


Fig. 2. Shows the type of family head

6. CONCLUSION AND RECOMMENDATIONS

Discussion of results in this research revealed that for most of the schools and families visited, the homework system was not being implemented successfully. This research unraveled some of the realities in some of the rural schools in Zimbabwe regarding homework management. Some of these realities certainly call for meticulous planning on the part of those designing homework. As noted by Lemmer and van Wyk [1], there are several challenges to the success of the Teacher-Learner-Parent partnership for the promotion of children's learning. These include limited knowledge and experience of parental involvement (no shared responsibilities), time constraints, unsupportive family structures, cultural and social barriers and lack of a well-defined school policy on home-school linkage. There is equally need for a shared understanding of the nature of parental involvement as well as a shared and negotiated involvement of illiterate parents. The planners should also ensure that there is correlation between the learner's level of education and the kind of parental assistance to be offered. In other words, there must be a well-designed and executed

context analysis to know the various situations that obtain in learners families. This might seem a mammoth task but is indeed a worthwhile one. It does not help to pretend that we are doing something when we are probably doing the opposite. Even the procedures so designed to enforce homework should be re-evaluated. Whatever we do, we must be able to explain how that will lead to learners improved scores. This should be done as a matter of principle perchance we may improve our learners learning.

This research thus, concluded that there was no homework policies at the four schools visited. As a result, teachers were operating in isolation. There was no systematic approach to homework owing to the absence of a school policy on homework. The research also discovered that marking of homework and provision of feedback was erratic in cases and that tends to work negatively against homework. Notwithstanding the problems noted above, the research did establish that most teachers in the sample were assigning homework to their learners. It is worth noting that these results need to be understood within the context of the schools that make up Njelele Primary Schools Cluster.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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Influence of Television Programs Genre on Violent Behaviour among Young Children

ABSTRACT

Aims: The purpose of this study was to examine the relationship between television program genre and aggression behaviour in primary school students.

Study Design: Cross sectional design.

Place and Duration of Study: The current study conducted in the five provinces of Iran which selected through a multi-stage random sampling from different geographical areas comprising of North, South, West, East and central area of Iran during September and December, 2011.

Methodology: Four hundred twenty four primary students from different grades (grade one to five) were recruited in study. This survey investigated whether exposure to television program type was related to children's use of social aggression that explored using Buss-Perry standard questionnaire.

Results: The results of the survey revealed a significant relationship between watching movies with action genre and aggression level among students ($p < 0.05$). Finding indicated that there was no difference between mean of aggression level among children who interested in particular type of TV programs, except animation which showed a significant difference ($p < 0.05$).

Conclusion: In conclusion current study provides additional evidence to support that content of television programs particularly its genre is very important in shaping the children behavior. As a new perspective, focus on genre as an important element in producing of television programs could be helpful for authorities.

Keywords: aggression; genre; primary school; students.

1. INTRODUCTION

Studies have shown that children behave more aggressively after exposure to film or televised violence [1]. Many parents are concerned about the influence of viewing violence on children. Researchers have revealed that children's television comprises about 20 violent acts per hour and that children who view a lot of violent television probably have more altered attitudes and behaviour [2]. The message of aggressive cartoons for the Youths might be: "aggression works and wins", although they also laugh or mention that it is fantasy. Although there are various ideas about how much TV violence is harmful to children, it is known that watching TV violence repeatedly has a real influence. Those who are watching TV more than three hours daily, younger children, children from violent homes, boys, and those who are insecure seem to be more influenced by contact to TV violence [3,4]. Children often behave differently after they've been watching violent programs on television. In one study, preschool children were observed both before and after watching television; some watched cartoons that had many aggressive and violent acts; others watched shows that didn't have any kind of violence [5]. Children who watched the violent shows were more likely to strike out at playmates, argue, disobey authority, and were less willing to wait for things than those children who watched nonviolent programs [6]. Other research, however, suggests that the effect of watching violent TV content is not short-lasting and studies linking excessive TV watching and disruptive behaviour in children are not always able to account for the influence of family and genetic factors underlying this association [7]. Television aggression can affect more apparently some children with some characteristics including person factors (Person factors include all the characteristics a person brings to the situation, such as personality traits, attitudes, and genetic predispositions) and situational factors (include any important features of the situation, such as presence of a provocation or an aggressive cue) [8].

Slater [9] analyzed selective exposure in a large scale study of 8th grade students (3100 students). His finding has confirmed that adolescents prefer violent movies and especially with action genres. Researchers have identified television lessons that are being taught by children and adult programming alike. These lessons were: 1) television teaches that the level of violent among good and bad characters is almost the same; 2) aggression behaviour on television is used for solving the problems; 3) hero on television actively use the violence in order to resolve dilemmas;

and 4) Since after violence act, all victims recovered completely, therefore the violence is not harmful [10,11,12].

In the field of communication, there are many theories and each of them looks into specific dimensions of the media's roles and importance. A number of theories concern with the impacts of TV violence on the audience, creating an increase in aggressive behaviour. To analyse the relationship between TV violence and aggression, social cognitive theory seems to be suitable among general media effects theories. Social cognitive theory proposes that human functioning is the product of reciprocal determinism, or the dynamic interplay of (a) personal factors (e.g., cognition, affect); (b) behaviour; and (c) environmental influences, which interact to influence human behaviour. It offers a comprehensive understanding of how people learn behaviours in a range of contexts; including those based on media exposure [13]. Social Cognitive theory provides an explanation for how violent media may influence childhood aggression. Social Cognitive theory posits that a child learns how to act and forms his or her attitudes from observing important role models in his or her life [14]. Characters portrayed in the media may become models that influence the child's attitudes, beliefs, and behaviour. He or she may learn to see violence as a part of everyday life and an acceptable way to solve interpersonal problems. Younger children do not understand the difference between reality and fantasy, according to research [15]. Developmentally, they are less able to discern reality from fantasy and are more likely to be emotionally and cognitively affected by the violence they observe [16]. However, the effects of television programs are dependent on the type of content of programs viewed. Therefore, present study proposed the following research hypotheses: the genre of children's favourite TV programs is significantly related to their aggression behaviour. However, the effects of television programs are dependent on the type of their content and genre. The term "genre" comes from the French language and means type "or kind". According to Kellner [17] a genre refers to a coded set of formulas and conventions which indicate a culturally accepted way or organizing material into distinct patterns. Once established, genres dictate the basic conditions of a cultural production and reception. For example, crime dramas invariably have a violent crime, a search for its perpetrators. Genre is the term for any category of literature or other forms of art or entertainment, e.g. music, whether written or spoken, aural or visual, based on some set of stylistic criteria. Television program genres can be categorized according to the setting of the program. Nevertheless,

programs with the same settings can be very different, due to the use of different themes, format or moods. Berger [18] stated that some of the more important formulaic broadcast television genres, and programs that can be placed in each genre, are as follow: commercials, news, sports broadcasts, action adventures, drama, religious programs, science and education shows, game shows, talk shows, comedies and so on.

In the past few decades, a subset of research has focused on how television alters viewers' cognitive and emotional processes. In this regards, it is necessary to consider some aspects of television program on children's behaviour. So the current study aimed 1) to determine the most favourite children's TV program in order to explore their relationship with aggression level of them; 2) to examine the relationship between television program genre and aggression behaviour in primary school students.

2. MATERIALS AND METHODS

A cross-sectional study was carried out among primary school students between September and December, 2011. A multi-stage random sampling was used to select the schools. First, five provinces out of the 31 provinces in Iran from different geographical areas of country including North (Gilan Province), South (Hormozgan province), West (Kurdistan Province), East (Yazd Province) and Central region (Markazi Province) were selected randomly. Secondly, one city and one village were selected from each of these five provinces by simple random sampling. From ages 5 to 18, boys and girls are educated separately in different schools in Iran. Girls typically have female teachers, while boys are taught by men, so in order to explore relationship between TV viewing habits and aggression behaviours in children, from each selected areas (rural and urban area of each selected province) two schools were selected randomly covering both genders, adding up to a total of 20 schools (Fig. 1). The subjects of current study consisted of 424 students from grade one to five (7-12 years old) from both genders. All students were granted parental permission and signed their own assent forms before participating. The survey was administered in a quiet place at the students home. Children were interviewed by researcher with reading question stems and answer choices, and allowed students to answer the questions. Upon completion, children received a novelty pencil in thanks for their participation.

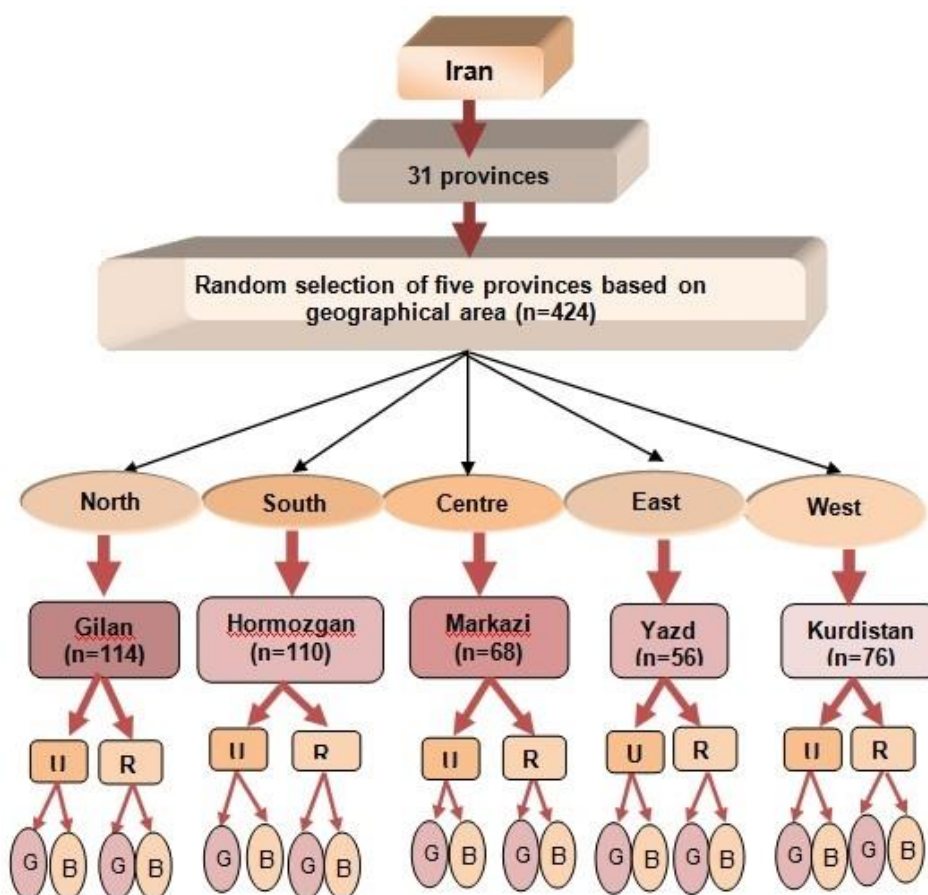


Fig. 1. Flow chart of the sample selection

U: Urban, R: Rural, G: Girls School, B: Boys School

2.1 Participants

Four hundred twenty four primary students (grade one to five) were consulted for the present study. The participants were residing in five provinces of Iran in different geographical areas. Half of the students were male (50.5%) and residing in urban area. The mean age (\pm Standard Deviation) of children were 9.76 ± 1.61 years ranging from 7 to 12 years. The students family size and birth rank were 4.36 ± 1.34 and 1.82 ± 1.26 respectively. The students fathers and mothers mean age were 38.82 ± 5.91 and 34.28 ± 5.54 years. The majority of students father worked as nonprofessional employers (52.1%) in their provinces and occupation of most their mothers were housewife (87.5%). Most of the students parents had finished primary school as their education level (26.7% and 36.8% for fathers and mothers respectively).

2.2 Instrument

A validated and reliable self-administered, structured questionnaire was used for data collection. Content validity of the questionnaire was ascertained by an expert panel, which comprised three mass communication specialists, an epidemiologist, an educational psychologist and a clinical psychologist with specialty in children behaviours.

Reliability (internal consistency) was assessed by using Cronbach's alpha. The Cronbach's alpha coefficient was 0.94 for the 25 aggression questions indicating adequate reliability of the questionnaire [19]. The questionnaire was pretested among 30 elementary students for checking the clarity of the items excluded from the study samples. The questionnaire consisted of three sections on socio-demographic information, media using habits and Buss Perry Scale for assessing aggression level.

The survey was administered in a quiet place at the students home. Children were interviewed by researcher by reading questions and answer choices, and allowed students to answer the questions. Upon completion, children received a novelty pencil as an appreciation for their participation.

2.3 Media Using Habits

In order to gauge the duration each participant watched television each day, a series of questions was asked where each person had to estimate the total hours of television viewing during a day. Specifically, participants had to rate the number of hours they watched in the morning (6 AM — 12 PM), afternoon (12 PM — 6 PM), evening (6 PM — 12 AM), and late night (12 AM — 6 AM). Their responses were summed to each question to create each participant's average television viewing hours per day. To determine the extent to which participants watched different genres of television, each participant had to rate how frequently they watched a variety of programs. Specifically, each participant rated on a scale from 1 (= never) to 5 (= all the time) how frequently they watched a large list of different types of programming within fourteen categories: musical TV series, action, action adventure, comedy, religious, fantasy, game show, drama, documentaries, fiction, horror, sport, educational and thriller.

2.4 Buss-Perry's Aggression Questionnaire (AQ)

Buss-perry's aggression questionnaire was validated and made norm base on Iranian culture previously [20,21] and consequently 4 items deleted from original questionnaire and finally a 25 items questionnaire was prepared. Trait aggression was measured by the total score of the AQ and scores of the subscales including Physical Aggression (items 1 to 7), Verbal Aggression (items 8 to 12), Anger (items 13 to 17), and Hostility (items 18 to 25). The AQ comprises 25 items in a 5-point Likert format from 0 (extremely uncharacteristic of me) to 4 (extremely characteristic of me). Aggression level of students defined as Low-aggressive (percentile <25% of aggression score); Moderate aggression percentile 25-75 and High aggression percentile >75%. The required time for completion of each questionnaire was equal to 30 minutes.

2.5 Data Analysis

One-way ANOVA followed by Post Hoc test (Duncan) and independent t-test were performed in the data analysis, using SPSS version 18. The level of significance for all statistics was set at $p < 0.05$.

3. RESULTS AND DISCUSSION

3.1 Results

3.1.1 Respondents profile

A total of 424 participants from 5 provinces of Iran responded to the study instrument. Of the 424, 214 students were male, and 210 students were female. The age of respondents ranged from 7 to 12 with the average age being 9.75 ± 1.60 . Additional demographics revealed 57 first-graders (13.44%), 61 second-graders (14.38%), 92 third-graders (21.69%), 98 fourth-graders (23.11%), and 116 fifth-graders students (27.36%) responded to the survey (Table 1).

Table 1. Demographic profile of students by province

Characteristics	Provinces					Total N (%)
	Gilan N (%)	Markazi N (%)	Yazd N (%)	Hormozgan N (%)	Kurdistan N (%)	
Sex						
Male	56(49.10)	37(54.4)	27(48.2)	50(45.5)	44(57.9)	214(50.47)
Female	58(50.90)	31(45.60)	29(51.8)	60(54.5)	32(42.1)	210(49.53)
Total	114(100)	68(100)	56(100)	110(100)	76(100)	424(100)
Age						
7	17(14.9)	7(10.3)	10(17.9)	8(7.3)	4(5.3)	46(10.84)

8	14(12.3)	16(23.5)	11(19.6)	13(11.8)	7(9.2)	61(14.38)
9	21(18.4)	9(13.2)	8(14.3)	23(20.9)	10(13.2)	71(16.74)
10	21(18.4)	15(22.1)	12(21.4)	28(25.5)	23(30.3)	99(23.35)
11	14(12.3)	8(11.8)	11(19.61)	17(15.5)	18(23.7)	68(16.03)
12	27(23.7)	13(19.1)	4(7.1)	21(19.1)	14(18.4)	79(18.63)
Mean±SD	9.71±1.74	9.58±1.65	9.26±1.58	9.87±1.50	10.13±1.39	9.75±1.60
Grade						
1	21(18.4)	13(19.1)	10(17.9)	9(8.2)	4(5.3)	57(13.44)
2	13(11.4)	14(20.6)	10(17.90)	14(12.7)	10(13.2)	61(14.38)
3	28(24.6)	11(16.2)	14(25)	30(27.3)	9(11.8)	92(21.69)
4	25(21.9)	14(20.6)	9(16.10)	31(28.2)	19(25)	98(23.11)
5	27(23.7)	16(23.5)	13(23.2)	26(23.6)	34(44.7)	116(27.36)
GPA						
14-16	3(2.63)	5(7.35)	2(3.570)	11(10)	0.0(0.0)	21(4.95)
16.01-18	26(22.80)	13(19.11)	3(5.35)	28(25.45)	9(11.84)	79(17.63)
18.01-20	85(74.56)	50(73.52)	51(91.07)	71(64.54)	67(88.15)	324(76.41)
Mean±SD	19.03±1.27	18.78±1.43	19.35±1.02	18.59±1.53	19.37±0.78	18.98±1.31

GPA: Grade Point Average

3.1.2 The most favourite children's TV programs

One of the objectives of this study was to determine the most favourite children's TV program in order to explore its relationship with their aggression level. Data obtained from the first study showed that all students interested in 22 programs. According to the findings, most of the students (n=64) reported Amoo Poorang as the most favourite TV programs, followed by two TV programs (Fetileh and Khaleh Shahdooneh) (n=53), Tom and Jerry (n=49) and Ninja Turtles (n=35). The least favourite TV programs was Cinderella (n=4). Findings also showed that the most aggression level was found among students who reported Ninja Turtles (n=15), Captain Tsubasa (n=13), Batman (n=12), Spiderman (n=10), Ben Ten (n=10) and Pokemon (n=7) as their favourite TV programs (Table 2).

Table 2. Comparisons of students aggression level by their favourite TV programs

Favourite TV Programs	Level of Aggression			Total
	Low Aggression <25 N (%)	Moderate Aggression 25-75 N (%)	High Aggression >75 N (%)	
1 Amoopoorang	17 (26.56)	42 (65.62)	5 (7.81)	64
2 Fitile	18 (33.96)	29 (54.71)	6 (11.32)	53
3 Khaleh Shadoneh	19 (35.84)	31 (54.49)	3 (5.66)	53
4 Tom and Jerry	22 (44.89)	27 (55.10)	0 (0.00)	49
5 Ninja Turtles	4 (11.42)	16 (45.71)	15 (42.85)	35
6 Mal Mal	3 (10.71)	23 (82.14)	2 (7.14)	28
7 Captain Tsubasa	0 (0.00)	4 (23.52)	13 (76.47)	17
8 Spiderman	0 (0.00)	7 (41.17)	10 (58.82)	17
9 Ben Ten	0 (0.00)	3 (23.07)	10 (76.92)	13
10 Batman	0 (0.00)	0 (0.00)	12 (100)	12
11 Shaun the Sheep	4 (44.44)	5 (55.56)	0 (0.00)	9

12 Megaman	0 (0.00)	3 (33.33)	6 (66.67)	9
13 Superman	0 (0.00)	3 (33.33)	6 (66.67)	9
14 Pink Panter	1 (12.50)	7 (87.5)	0 (0.00)	8
15 Pino Kio	4 (50.00)	4 (50.00)	0 (0.00)	8
16 Brave Boy	4 (57.14)	3 (42.85)	0 (0.00)	7
17 Pat and Mat	4 (57.14)	3 (42.58)	0 (0.00)	7
18 Pokemon	0 (0.00)	0 (0.00)	7 (100.00)	7
19 Anne Shirly	1 (20.00)	3 (60.00)	1 (20.00)	5
20 Mr Bin	1 (20.00)	4 (80.00)	0 (0.00)	5
21 Red Riding Hood	5 (100.00)	0 (0.00)	0 (0.00)	5
22 Cinderella	2 (50.00)	2 (50.00)	0 (0.00)	4

3.1.3 Relationship between TV programs genre and students aggression level

The other study objective was about relationship between genres of TV program and level of aggressive behaviour. Finding showed that there were higher levels of aggression in all domains found in some children's programs genre including Action adventure (n=42), Action (n=27), Sport (n=11) and Horror (n=9), as compared to other programs like Comedy, Drama, Fiction, Documentary, Educational, religious and Musical TV series (Table 3).

Table 3. Respondents TV favourite genres by different aggression level

TV favourite genres	Level of Aggression			Total
	Low Aggression N (%)	Moderate Aggression N (%)	High Aggression N (%)	
1 Musical	31 (33.33)	58 (62.36)	4 (4.30)	93
2 Action	0 (0.00)	35 (56.45)	27 (43.55)	62
3 Action Adventure	0 (0.00)	14 (25.00)	42 (75.00)	56
4 Comedy	22 (45.83)	24 (50.00)	2 (4.16)	48
5 Drama	14 (40.00)	20 (57.14)	1 (2.85)	35
6 Fiction	7 (26.92)	18 (69.23)	1 (3.84)	26
7 Documentaries	9 (37.50)	15 (62.50)	0 (0.00)	24
8 Sport	2 (10.52)	6 (31.58)	11 (57.89)	19
9 Educational	9 (64.28)	5 (35.71)	0 (0.00)	14
10 Horror	0 (0.00)	3 (25.00)	9 (75.00)	12
11 Thriller	3 (27.27)	7 (63.63)	1 (9.09)	11
12 Game Show	3 (30.00)	7 (70.00)	0 (0.00)	10
13 Fantasy	4 (44.44)	5 (55.56)	0 (0.00)	9
14 Religious	3 (60.00)	2 (40.00)	0 (0.00)	5
Total	107 (25.23)	219 (51.65)	98 (23.11)	424

The most preferred TV program genres included Musical TV Series (with mean \pm SD: 17.51 \pm 4.20, 15.10 \pm 3.53, 14.53 \pm 3.69, 22.24 \pm 5.66 for various aggression domains consists of physical, verbal, anger and hostility respectively), Action (with mean \pm SD: 24.20 \pm 3.79, 20.11 \pm 2.52, 18.62 \pm 2.47, 30.24 \pm 4.05 for various aggression domains consists of physical, verbal, anger and hostility respectively), Action adventure (with mean \pm SD: 27.08 \pm 3.69, 21.07 \pm 2.59, 19.17 \pm 2.28, 31.85 \pm 3.22 for

various aggression domains consisting of physical, verbal, anger and hostility respectively), Comedy (with mean \pm SD: 17.64 \pm 3.90, 14.89 \pm 3.88, 13.16 \pm 3.44, 21.64 \pm 4.94 for various aggression domains consisting physical, verbal, anger and hostility respectively). But the highest level of aggression in all domains was detected in Action, Action adventure, sport and Horror respectively while the lowest level of aggression was displayed in Religious, Fantasy, Game show and educational genre (Table 4).

Since different TV program genre showed various level of aggression in different domains, so for exploring whether different genres can display more aggression in various domains, an ANOVA was conducted comparing children's favourite program genres and their aggression level which reported a significant difference in all components of aggression level considering students favourite TV genres ($p < 0.05$) (Table 5). In other word students who preferred to watch these genres were more likely to show physical aggression than other subtype of aggressions. In order to further exploring these findings, a Duncan post-hoc test was conducted which showed that students who watched more these programs, significantly ($p < 0.05$) illustrated more aggression level than other programs. The study also was established same results for all domains of aggression including; physical, verbal, anger and hostility.

Table 4. Mean and Standard Deviation of various components of aggression among students by TV programs genres

Aggression Components Genre	Physical		Verbal		Anger		Hostility	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Musical	17.51	4.20	15.10	3.53	14.53	3.69	22.24	5.66
Action	24.21	3.79	20.11	2.52	18.62	2.47	30.24	4.05
Action Adventure	27.09	3.69	21.07	2.59	19.17	2.28	31.85	3.22
Comedy	17.64	3.90	14.89	3.88	13.16	3.44	21.64	4.94
Drama	18.74	5.06	15.54	3.89	14.71	3.71	22.77	5.50
Fiction	17.77	4.64	15.65	4.33	15.23	3.73	24.69	6.03
Documentaries	19.29	4.16	15.45	3.41	13.33	3.33	21.62	5.11
Sport	24.89	6.22	19.26	3.89	17.63	3.78	28.73	7.48
Educational	15.93	3.47	12.85	3.50	13.42	2.84	19.85	4.55
Horror	27.58	3.28	21.83	1.85	20.00	2.82	31.08	3.72
Thriller	20.45	6.21	16.81	3.25	15.27	4.17	24.45	6.65
Game Show	18.80	4.13	14.00	4.98	13.80	3.11	24.30	4.21
Fantasy	16.22	7.17	14.77	2.90	13.33	4.30	23.00	7.59
Religious	18.00	3.93	13.60	2.96	12.20	2.68	20.40	3.64

Table 5. ANOVA test of different aggression components by TV programs genres

		Sum of Squares	df	Mean Squares	F	Sig.
Physical	Between Groups	6318.980	13	486.075	25.659	.000
	Within groups	7766.810	410	18.943		
	Total	14085.790	423			
Verbal	Between Groups	3063.627	13	235.664	20.242	.000
	Within groups	4773.314	410	11.642		
	Total	7836.941	423			
Anger	Between Groups	2328.906	13	179.147	16.573	.000
	Within groups	4431.990	410	10.810		
	Total	6760.896	423			
Hostility	Between Groups	7212.575	13	554.813	21.113	.000
	Within groups	10774.196	410	26.279		
	Total	17986.771	423			

In addition, an independent t-test was performed to test the impact of the most favourite children television program type on their aggression behaviour, and findings indicated that there was no difference between mean of aggression level among children who interested in particular type of TV programs or no, except for animation which showed a significant difference ($p < 0.05$) (Table 6).

Table 6. Comparisons of aggression mean among students by the most favourite TV programs type

The most favourite TV program type		N	Mean	t	Sig. (2-tailed)
Animation	Yes	363	79.7 (18.04)	-2.667	.008
	No	61	73.16 (15.37)		
Puppet show	Yes	157	77.12 (17.63)	1.447	.149
	No	267	79.7 (17.88)		
Game show/Musical	Yes	162	77.42 (18.15)	1.197	.232
	No	262	79.57 (17.58)		
Sport	Yes	179	77.51 (18.59)	1.210	.227
	No	245	79.65 (17.2)		
Drama	Yes	242	78.34 (18.33)	.545	.586
	No	182	79.29 (17.13)		
Children Series	Yes	225	80.35 (17.19)	-1.964	.05
	No	199	76.94 (18.36)		
Documentary	Yes	106	79.36 (19.17)	-.390	.697
	No	318	78.54 (17.36)		
others	Yes	13	74.00 (18.96)	.919	.375
	No	411	78.90 (17.78)		

3.2 Discussion

The research found significant relationship between programs genre and antisocial behaviour among students, which are consistent with other studies [22, 23] and also confirmed the hypothesis of present study which stated there is a significant relationship between TV program genre and aggression level among students. Chen and his colleagues [24] also reported that aggression behaviours of students were associated with music genres. The differential effects of genre, particularly that the point estimates for educational programming were in the direction of a protective effect, are important in that they suggest that alternative programming types could offer behavioural benefits to children without necessarily reducing overall viewing time. Coyne [25] argued that indirect aggression was more likely to be portrayed in soap operas than other genres.

The findings of current study illustrated that higher level of aggression in all domains was found in some students that their favourite children's programs genre were coded as Action adventure, Action, Sport and Horror. Consistently with present study, the previous research also confirmed male adolescents prefer to watch action movies more than any other types of movies [26].

By the 1990s, the action movie was the most common and popular genre, which also include science fiction, fantasy, horror, and comedy. Action is a fundamental element of the movies. Because of this, for a long time action movies were not thought by producers and audiences as a different genre. According to Herman and Leyens [27], Belgian television had more movies with action genres which had considerably larger audiences than other types with less violent contents. As stated by the researchers, their data supported that adolescents chose to watch a movie because of the promise of violent content. An excellent example of this is the episodic cartoon "Teenage Mutant Ninja Turtles" which also was one of the most favourite TV programs based on present research respondents point of view.

These particular mutant turtles are able to walk, talk, move, think, act, and reason like human beings. They are heroes and defeat their enemies with weapons and karate moves. The message being sent is these four turtles are obvious good guys, but their actions are not that much different from the evil they eliminate. Violence is seen as justifiable in this type of representation and children absorb it like a sponge. This phenomenon also is in accordance with Social Cognitive Theory. According to social cognitive theory, children are more likely to imitate observed behaviours that are

rewarded than those that are punished. Children will also imitate behaviours that produce no consequences because, especially in the case of antisocial acts, the lack of punishment can serve as a tacit reward. The type of media role model also makes a difference. Children are most likely to learn from models that are attractive and from those they perceive as similar to themselves [28]. Social cognitive theory, then, helps explain how children can acquire new behaviours from watching a media character on the screen.

Although researchers made every effort for this research to be as valid as possible, there are a couple of limitations that should be addressed. First, the causal connection cannot be ascertained from a correlational design and this design is just able to detect relationship between variables. Second, according to governmental policy in Iran, use of satellite is forbidden and consequently in some cases, respondents refused to answer questions regarding this medium and presented program types and genres. This situation might cause underestimate of satellite users and some favorite programs genre which fall in the scope of study.

This research also has some implications for media producers, especially children programs producers. The media managers and practitioners must make a new kind of children's programs comprising attractive and suitable scenes considering their genre. Television producers should pay special attention to the ways they are presenting aggression in their programmes. If later research finds more impacts, it may even be necessary for very high levels aggression programmes to warn viewers of the content. Clearly, it is impossible to omit all instances of aggression from television. In fact, it is not realistic. Since the aggression occurs in real life, it should be presented in the media as well. It is necessary to identify the potential reasons why an individual behaves like this against others and make an attempt to reduce it to a possible degree. Teachers, parents and media producers should be educated about the detrimental impacts of aggression and be taught how to identify and prevent the spread of this kind of behaviour. In this way, we can identify the impacts of viewing aggression on television and the most important of all, how to prevent these cruel aspirations from becoming a reality.

This study provides some guidance to media authorities, but additional research is needed in future studies to address certain areas. An experimental study is needed to explore the exact causality in terms of TV program genre on aggression behaviour among children. Additional short-term studies of the effects of violent TV

programs are needed to further specify the characteristics of programs and of TV viewers that reduce and intensify the aggression-related outcomes.

4. CONCLUSIONS

Children were exposed to violence in action and action adventure in a greater frequency than in other genre. Television genre preference, conversely, may reflect some personal predispositions or lifestyle preferences. In conclusion current study provides additional evidence to support that content of television programs particularly its genre is very important related to the children behavior. As a new perspective, focus on genre as an important element in producing of television programs could be helpful for authorities.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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The Work Ethical Behaviour of Nigerian Police Officers as a Function of Self-Esteem, Gender and Age

ABSTRACT

This study investigated the influence of self-esteem, gender and age on work ethical behaviour of police officers. 200 Police Officers comprising of one hundred and six (106) males (53%) and ninety four (94) females (47%) with their ages ranging from 18-51 from the Imo State Police Command in the South Eastern region of Nigeria were selected using convenience sampling technique. They were administered with a self developed work ethic questionnaire and index of self-esteem questionnaire developed by Hudson (1982). Three hypotheses were tested:

- I. Self-esteem will not be a statistical significant factor affecting work ethical behaviour of police officers.
- II. Gender will not be a statistical factor affecting work ethical behaviour of police officers.
- III. Age will not be a statistical significant factor affecting work ethical behaviour of police officers. A cross sectional survey was adopted, while F-test for 3-way ANOVA was used to analyze the data. Results showed that self-esteem and gender influenced adherence to work ethics ($P < .05$) while age did not. Officers with high self-esteem in general and female officers in particular were more ethical in their behaviour.

Keywords: self-esteem; gender; age; Nigerian police officers; ethical behaviour.

1. INTRODUCTION

The Nigeria Police Force was formed in the year 1930 and later enshrined in section 194 of the 1979 constitution [1]. Their roles include the enforcement of law, protection of lives and properties as well as the maintenance of internal peace and security. However, the Force has drawn great attention from a vast majority of the Nigerian population following a spate of total collapse in the adherence to its work ethics. Thus, great attention has shifted from the ethical behavior of those in the economic sector, administrative and other spheres of social life to individuals in the Nigerian Police Force, thereby putting heavy ethical demand on the work of police officers. These demands include a number of norms which the police officers have to abide by in their day-to-day work in case their activities are appraised as professionals according to public expectations. Ethical behavior as used in this work involves refraining from negative acts/behavior that is contrary to the code of conducts of the Nigerian Police Force. It is characterized by honesty, fairness and equity in interpersonal, professional and relationships. An officer who espouses ethical behavior will respect the rights of the citizens.

Generally, there has been a negative perception of the Nigeria Police Force (NPF) which emanated from their poor performance in handling crimes and poor work ethics exhibited by some of its members. This has lowered the level of confidence and trust the Nigerian citizens have on the NPF. As [2] pointed out, resident cooperation with police can only improve if residents' perceptions of police legitimacy and trustworthiness are increased. Westmarland [3] opined that people are interested more on what the police do than how they do it. This statement is true especially in the Nigerian context. The media and the public have not shown interest in how the NPF do their job as well as identifying some of the factors that may have deterred their efficiency. Presently the NPF is understaffed, under equipped with the necessary logistics like sophisticated arms, communication gadgets and vehicles needed for the successful execution of their mission to serve and protect [4]. For example, Nigeria has a population of over 150,000,000; it requires 375,000 police men to meet the United Nations recommended strength. Unfortunately, what Nigeria has today is 310,177 given a shortfall of 64,823 whereas the recommended United Nations Police ratio in any given population is 400:1 (400 citizens for one policeman). Nevertheless, the Nigerian government is currently making efforts to reform the police. A White Paper with 79 recommendations for improving the police force, known as Police Reform Bill

is ongoing. Key reforms such as: Police officers who receive as little as \$40 (£26) a month, should be raised to \$100 for police constables, Deal with the estimated 10,000 officers with criminal records hired between 2001 and 2004, Establish a reliable system for the public to complain about the police, better educated recruits should attain a certain level of qualification before being considered, job applications should be transparently managed, policemen should not have to buy their own uniforms, the police are in dire need of an up-to-date communication network, and the police should be given better investigating tools and the training to use them [5]. The willingness to abide to ethical norms by police officers depends on their attitude toward work. Given the diversity of the workforce of the police in terms of demographic variables such as gender, age educational level, rank and length of service; the ethical attitude of police officers cannot be said to be homogenous, rather it appears far more complex. But this research is particularly interested in self-esteem, gender and age composition of the workforce. Though there are no available statistics regarding the self-esteem, gender and age composition of the workforce, available evidence shows an increase in the number of women and youths in the police force. It is also worth stating that work ethic is also changing as workplace diversity, generational and cultural differences make the work ethic more complex. Thus, ethical attitude based on a more homogenous work environment may not apply in tomorrow's workplace. Based on the above, it is therefore imperative to examine how self-esteem, gender and age difference affect the workplace ethical attitudes of individuals in the Nigeria Police Force (NPF). The image of Nigeria to the rest of the world is that Nigerians are corrupt. There is corruption everywhere in Nigeria that the President, Goodluck Jonathan in his inaugural speech acknowledged corruption as the country's biggest problem. The federal government established the Economic and Financial Crime Commission (EFCC) and the Independent Corrupt Practices Commission (ICPC) as agents for fighting corruption in the country. Corruption has brought untold hardship to Nigerians, a high rate of poverty inequality and total collapse of essential services like electricity, education and water. Some of the corrupt acts in Nigeria includes: bribery, Frauds, embezzlement, extortion, favoritism and nepotism to mention but a few.

The Nigerian police force, in spite of its pivotal role in criminal justice system is not immune to this virus that ravages the nation. It is unimaginable that an institution saddled with the responsibility of enforcing law could rank among

the most corrupt institutions in the country. However, there seems to be an existing inverse relationship between the effort being made by the government to boost sanity and performance in the Nigeria Police Force. It is to this effect that the Inspector general (I.G) of Police warned commissioners against unlawful detention and unhealthy work ethic. Thus, it is for this reason that this research is being proposed to provide answers to the problem of unhealthy work ethic among police officers of the Nigeria police force.

One attribute that may determine how an individual responds to work ethic is self-esteem. According to [6], it is generally accepted that people seek to maintain, enhance and protect their self-esteem. Also, the manner in which they foster their self-esteem has a great deal to do with their behavior and the consequences to others. Thus, their level of self-esteem influences their ethical behavior as regards to work. Self-esteem rises and falls in response to successes and failures in domains on which one has staked self-worth [6]. Although there may be cultural variability in its expression, the tendency to seek self-esteem is well established in western cultures.

Steele [7] stated that individuals with high self-esteem have integrity which they try as much as possible to protect by strictly adhering to their work ethic. This quest to protect their integrity is bedrock on the axiom which states; "whatever reduces a man's dignity reduces his authority". Integrity here is generally considered to be "uprightness" within an individual. A person who has high self-esteem does not only obey the law but also adheres to rules and standards. This kind of behavior is usually referred to as ethical behavior. Conversely, those with low self-esteem seem not to care much about ethical behavior since they are in the struggle to get to "the top", they believe they have very little or nothing to lose. Unfortunately, it is often difficult to judge the extent to which one adheres to high ethical principles/behaviour. For example, a decision regarding a particular course of action might be based on ethical standards, fear of punishment or enlightened self-interest.

There is this belief that men are more likely to consider rules, right and fairness, while, females are more likely to be concerned with relationships, compassion and caring [8]. That is to say, they are emotional. This difference is basically considered to be the result of gender socialization in early childhood. Traditional girls game involve indirect competition, and are more concerned with inclusion and turn-taking while traditional boys games tend to have more complex

and rigid rules, and involved competing against others within the parameter of these rules. Gilligan's Theory of Moral Development posits that women think and speak in different ways and in different voices than men when faced with ethical issue [9]. She presented two contrasting ways of resolving ethical dilemmas. Feminine ethics is based on care and compassion whereas masculine ethics is based on universal justice. Under the former, she contends that individuals (women in particular) who knowingly allow another person to feel pain blame themselves for not doing something to prevent or act as a palliative to their pains. While under the latter, individuals judge each other guilty if they do something wrong to one another.

Gilligan and Attanucci [10] attributed the differences in resolving dilemmas between men and women to difference in the socialization process. This is because women have been taught to be reserved and relationship oriented and for this reason, they tend to develop a caring ethical behavior. Men on the other hand, having being socialized to be tough and achievement oriented tend to develop an ethic of justice and fairness. These gender differences in ethical decision making are thought to have implications for adult's attitudes and interactions. Men are more likely to break rules given their competitive orientation. Women on the other hand are more likely to abide by rules and be less tolerant to rule breakers because of their concern for relationships [11].

A number of studies on police attitude towards ethical issue conducted in the western world have reported that female officers on average expressed higher ethical standard than males. For example, in a longitudinal survey of law enforcing officers in the United States, [12] found that female officers gave significantly more ethical responses for both idealistic and realistic situations than their male counterparts. In Australia, [13] investigated the attitude to police officers and recruits towards breaches of ethics and found that females appeared to have higher ethical personal standard than male officers of equivalent rank. Similarly, [14] examined the influence of gender and age on attitude towards professional ethic among a sample of the Nigeria police officers using a cross-sectional survey, data was collected from a total of 163 participants and the results revealed that gender and age were significant predictors of unethical beliefs; females and older police officers were more ethical than their male and younger counterparts. Again [15] reported the findings of a meta-analysis of 47 students showing that female students consistently exhibit stronger ethical attitudes than their male counterparts.

In a survey using a series of vignettes across different settings in the US, [16], found that, among business professionals females displayed higher ethical judgment than the male folks.

Another variable which may significantly influence the extent in which an individual adheres to the ethical demands of his/her work place is age. In the contemporary Nigerian society, old age is usually likened to wisdom, uprightness and adherence to norms [17]. This is because, the more advanced in age one becomes the more experience he/she acquires and for this reason, they think, talk and act out of their wealth of past experiences. Thus, their actions are compelled by positive reasoning. The younger police officers on the other hand, may act out of youthful exuberance without considering the consequences of their actions. However, younger officers who are in close contact with the older colleagues may be influenced by their attitudes. This study seeks to empirically confirm the influence of the age of police officers on their work ethical behaviours.

According to the observational theory of Bandura [18], much of what we learn are obtained by observing others, and this is much more efficient than learning through direct experience because it spares more countless responses that might be followed by either punishment or no reinforcement of any kind. The people whose behavior is observed are referred to as models. [18] identified four (4) main processes that are crucial for observational learning. Attention, retention/representation, behavior production and motivation. In order to learn through observation you must attend to the model. Factors that regulate attention include whether we think the behavior is important and can yield some profit to us. Secondly, we must learn to make some mental representation of what we have witnessed in memory, since we may not have the occasion to use an observed behavior for up to several years. Behavior production on the other hand, involves the process of converting the mental representations into appropriate actions. For instance, you may remember that someone cheated on his taxes or embezzled money that was entrusted under his care but can you perform the feat? Lastly, observational learning is most effective when observers are motivated to enact the model behavior. Your motivation may depend on whether you encounter a situation in which you believe that the response is likely to lead to favorable consequence(s) for you.

From the above, it is therefore, deduced that every officer in the Nigeria police force has a role model, and severe punishment to this model (as a result of negligence to work ethic and/or non adherence to code of conduct) will restrain the officer from emulating him/her. If on the contrary, the model gets away with his/her wrong deeds, the observer will therefore, have every cause to emulate him/her. Thus, to ensure that police officers eschew unhealthy work attitude, anyone caught espousing it should be severely punished, to serve as a deterrent to others who may wish to emulate him or her.

Afolabi and Omole [4] conducted a study on personality and workforce diversity as predictors of ethical behavior and job satisfaction among Nigerian Police officers. They upheld their hypothesis which predicted that age, gender, educational attainment and work experience of Police officers will independently and jointly predict their ethical behaviour. The results showing the contribution of each of the predictor variables in the joint prediction revealed that age contributed significantly with older police officers scoring higher on professional ethical scale than the younger ones. The contribution of gender was also significant, thus male police officers scored higher on professional ethical scale than their female colleagues. The present study therefore seeks to find out if self esteem, gender, and age can predict police officers work ethical behaviour.

1.1 Hypotheses

Self-esteem will not be a statistical significant factor affecting work ethical behaviour of police officers.

Gender will not be a statistical significant factor affecting work ethical behaviour of police officers.

There will be no statistical significant effect of age on work ethical behaviour of police officers.

2. METHODS

2.1 Participants

A total number of 200 volunteered police officers comprising of 106 males (53%) and 94 females (47%) with their ages ranging from 18-51, took part in this study. They were selected using the convenience sampling technique. One hundred police officers (participants), were drawn from Imo State Police Headquarters, 60

from Fire Service Police Station Owerri, and 40 participants were drawn from the New Owerri police station (area "A").

2.2 Measures

The researchers made use of two questionnaires in the course of carrying out this study. The first instrument which measured the ethical behavior of the participants was a self developed 21 item Likert Scale. This questionnaire was developed after going through the "Police Act" (CAP 359) which was made available to the researchers through the help of the Police public relation officer (PPRO), Imo state police command, Owerri so as to be abreast with the expected ethical behaviours of police officers in Nigeria. Some items on the questionnaire are; "At checkpoints, I delay motorists who refuse to appreciate me monetarily", "It is generally not wrong for an officer to accept bribe from business people" and "I intimidate the public with my uniform". Before the main study, a pilot study was carried out using thirty-three (33) police officers drawn from shell camp police station to ascertain the validity of the questionnaire. The item analysis reduced the items from the original developed twenty-eight (28) items to twenty-one (21). These twenty-one (21) items yielded a Cronbach's alpha level of .83 and a mean score of 65.58. Hence, the questionnaire is reliable.

The second questionnaire which was the Index of Self Esteem (ISE) questionnaire developed by Hudson [19] was used to measure the self esteem of the participants. It comprises of twenty five (25) items and uses the likert scoring format. Positive statements were scored directly while the negative ones were scored in the reverse order. The Nigerian norm of the second scale is 31.47 (30.89 for males and 32.04 for females), while the reliability is .93 and a two (2) hour test-retest coefficient of .92.

2.2 Procedure

It took exactly two working weeks to carry out the main research work which included collection of data. At the various police stations visited, there were officers on hand that helped out in the study. Two hundred copies of the questionnaire were distributed at the 3 selected Police Stations in Owerri metropolis which are as follows: one hundred questionnaires at the Police Headquarters; forty questionnaires at the New Owerri Police Station; while sixty questionnaires at the Fire Service Police Station. At the end of the whole exercise, the two hundred

questionnaires were properly filled and used for the analysis. These police stations were randomly selected from the five police stations in Owerri metropolis, the state capital of Imo state (Nigeria), these police stations include the State police headquarters which was part of the study. Information on the number of police officers in these stations were not revealed due to security reasons.

2.3 Design and Statistics

The design for this work is a cross-sectional survey design and the statistics adopted is the F-test for 3-Way analysis of variance (2x2x4 ANOVA). This was predicated on the two (2) levels of each of the first two independent variables, viz: Self-esteem (high vs low), gender (male vs female); and the third independent variable Age with four levels each (18-25,26-35, 36-45 & 45+).

3. RESULTS AND DISCUSSION

Table 1. The descriptive statistics of variables studied which includes the mean, standard deviation and number of participants respectively

Variables	Mean	Standard Deviation	N
Low self-esteem	56.90	8.72	108
High self-esteem	64.32	5.79	92
Male	57.83	8.73	106
Female	63.11	6.99	94
26-35	58.36	8.92	58
36-45	60.12	7.37	74
18-25	60.89	9.18	45
46+	64.70	6.86	23

The descriptive statistics of the scores of the police officers work ethical behaviour

The above table shows that the first hypothesis which stated that self-esteem will not be a statistical significant factor affecting work ethics of police officers is rejected, $F(1,184)=34.648$, $P < .05$. This means that self-esteem influenced the work ethical behaviour of police officers. Police with high self-esteem ($M=64.32$, $SD=8.72$.) espoused high ethical behaviour than their counterparts of low self-esteem ($M=56.90$, $SD=5.79$). Similarly, the second hypothesis is also rejected, $F(1,184) = 9.541$, $P=.002$. Thus gender played a significant role in work ethic. The female police officers ($M=63.11$, $SD=63.11$) exhibited high work ethic than their male counterparts ($M =57.83$, $SD=57.83$). However, the third hypothesis which

stated that there will be statistical significant effect of age on work ethic of police officers was upheld, $F(1,184)=1.634$, $P=.183$.

Table 2. A 3-way ANOVA summary table (Dependent variable: work ethical behaviour)

Source	Type III sum of squares	Df	Mean square	F	Sig
Corrected model	4563.7072	15	304.247	5.976	.000
Intercept	521387.459	1	521387.459	10241.758	.000
Self-esteem (A)	1763.848	1	1763.848	34.648	.000
Gender (B)	485.691	1	485.691	9.541	.002
Age (C)	249.476	3	83.159	1.634	.183
A * B	22.680	1	22.680	.446	.505
A * C	386.624	3	128.875	2.532	.059
B * C	242.739	3	80.913	1.589	.193
A * B * C	104.569	3	34.856	.685	.562
Error	9367.073	184	50.908		
Total	741390.000	200			
Corrected total	13930.780	199			

R squared = .328 (adjusted R squared = .273)

Three hypotheses were statistically tested in the research work and the results drawn from these constitute the findings according to the hypotheses tested.

The first (null) hypothesis speculated that "self-esteem will not be a statistical significant factor affecting the work ethical behaviour of police officers". This result corroborated the finding of [20], who conducted a study on employees' self-esteem and found out that an individual's self-esteem formed around play and organizational experiences would play a significant role in determining employee motivation, work related attitude and behaviour.

The second result also rejected the null hypothesis that gender will not be a statistical significant factor affecting work ethical behaviour of police officers. Thus, gender played a significant. The female police officers were more ethical in their behaviour than their male counterparts. This is in consonance with the research made by Adebayo (2005); his result revealed that gender and age were significant predictors of unethical beliefs. Females and older police officers were more ethical than their male and younger counterparts.

On the other hand, age was not a determinant of work ethical behaviour of police officers. This result is not in line with that of Afolabi and Omole (2011) who found that age and gender jointly and independently predicted Police officers ethical behavior. The results of this study imply that:

I. The level of an officer's self-esteem determines to a large extent how he/she will exhibit ethical behaviour. Therefore, a screening process for officers with high levels of self esteem and competency may help.

II. Due to the fact that female police officers were ethical in their behaviour than their male counterparts, it becomes imperative to encourage more females to join the NPF. Also, more female officers may help address the crisis of legitimacy in Nigerian policing and restore back the image of the NPF.

III. Age should not be considered an important variable during recruitment provided the applicant has the basic requirements and is above the minimum age required for entry into the force.

3.1 Limitations of the Study

One of the major limitations of this study is the use of convenience sampling. It is possible that only police officers who are ethical may have responded to the questionnaire. This method also does not allow the researcher to have any control over the representativeness of the sample. That is, the researcher did not control how well the characteristics of the sample (gender, age, race, education, etc.) match the characteristics of the larger population it is intended to represent. Similarly, the number of participants used does not adequately represent the population of police officers in Imo state. Therefore caution should be made when making generalizations from the findings of this study.

4. CONCLUSION

This study revealed the theoretical and practical aspects of self-esteem, gender and age in relation to the work ethical behaviour of officers in the Nigeria Police Force. In view of the study, it was discovered that self-esteem and gender had influences on the work ethical behaviour of police officers, whereas age did not. It will also enable the general public, the senior police officers in charge of recruitment and most importantly the government to know that police officers with low self-esteem in general and the male police officers in particular are more likely to be involved in unhealthy work ethics. This will encourage management not to discriminate against women during recruitment into the Police Force and also not to generalize that all police officers espouse unethical behaviour. The researchers hereby recommend that the Nigeria police Force should encourage researchers to

carry out research on their organization so that they can know their Achilles heels and work hard towards sanitizing the force and winning the trust and confidence of the general public and the government. Professionals like Psychologists should be engaged to take full charge of the recruitment and selection processes of individuals into the Force. By so doing, only individuals that are more likely to espouse ethical behaviour/abide by the ethics of the force will be recruited, thus enhancing their corporate image and achieving their mission to serve and protect.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Planning and forecasting of labor requirements at oil and gas production enterprises

Abstract: The competitive environment of the oil and gas business is constantly changing and becoming more complex, the time poses more and more complex tasks for the companies. In order to adequately respond to the demands of the time, companies need a new model to maintain and create competitive advantages that would make their activities as efficient as possible. At the heart of the modern model of competitiveness of the oil and gas corporation lies the principle of effective use, conservation and development of human resources.

Therefore, today, as never before, among the many functions of personnel management, special attention should be given to forecasting and planning the needs for human resources.

Keywords: planning, forecasting, demand, work force, regression, modeling, enterprises, quantity.

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Планирование и прогнозирование потребностей в рабочей силе на предприятиях нефтегазодобычи

Аннотация: Конкурентная среда нефтегазового бизнеса постоянно изменяется и усложняется, время ставит перед компаниями все более сложные задачи. Для того чтобы достойно ответить на требования времени, компаниям

необходима новая модель поддержания и создания конкурентных преимуществ, которая сделала бы их деятельность максимально эффективной. В основе современной модели конкурентоспособности нефтегазовой корпорации лежит принцип эффективного использования, сохранения и развития человеческих ресурсов. Поэтому сегодня, как никогда, среди множества функций кадрового менеджмента следует уделить особое внимание прогнозированию и планированию потребностей в человеческих ресурсах.

Ключевые слова: планирования, прогнозирование, потребность, рабочая сила, регрессия, моделирование, предприятия.

Планирование человеческих ресурсов – это прогноз потребностей нефтегазодобывающего предприятия в работниках, который учитывает особенности стратегии развития данной компании, при составлении такого прогноза специалисты отраслевых НИИ или служба управления персоналом должны определить, сколько работников, обладающих определенными навыками, профессиональными познаниями и способностями, потребуется нефтегазодобывающим предприятиям в будущем для выполнения поставленных перед ними задач и каковы будут расходы предприятия на привлечение и содержание этих работников. Многочисленными исследованиями доказано, что отсутствие и несоответствие прогноза численности персонала реальным потребностям компании способно нанести на её работу ощутимый урон. Мы поддерживаем мнение Н.Д. Bernardin [1] и R.B. Bowin [2], которые правильно считают, что планирование человеческих ресурсов на предприятии должны базироваться на тщательном анализе нижеследующих основных факторов: оценка ситуации на рынке труда; изменение окружающей среды; текущие и перспективные цели корпоративного развития; анализ трудовой деятельности и расчет потребностей в работниках; определение сильных и слабых сторон политики компании в области управления человеческими ресурсами; оценка уровня текучести и движения персонала; учет предстоящих макроэкономических изменений.

Планирование человеческих ресурсов необходимо вести на основании выработанной компанией стратегии развития. Реальное планирование способствует выявлению и эффективному использованию невостребованного потенциала работников.

При планировании потребностей работников в практике используется множество самых разнообразных качественных и количественных методов оценки – от весьма примитивных с математической точки зрения до сложных моделей многофакторного анализа [1]. Среди этих методов различают: экстраполяция, эвристические, метод дельф, компьютерное моделирование и метод сценариев. В. Леонтьев [3, с. 403] отмечает, что метод сценариев обеспечивает: лучшее понимание ситуации, ее эволюции; оценку потенциальных угроз; выявление благоприятных возможностей; выявление возможных и целесообразных направлений деятельности; повышение уровня адаптации к изменениям внешней среды.

Планирование численности в нефтегазодобывающих предприятиях тесно связано с прогнозированием, разделением этих процессов в известной мере условно, поэтому в планировании и прогнозировании могут использоваться одни и те же методы или тесно взаимосвязанные методы.

Для расчета выбираем следующие аргументы – факторы: объем добычи нефти и газа ($X_1(t)$, в тыс. тоннах), численность работников ППП ($X_2(t)$, чел.), количество рабочих мест ($X_3(t)$, шт.), количество нефтяных и газовых скважин (эксплуатационных) ($X_4(t)$, скважина), и отклик $y(t)$, (количество работников службы управлением персоналом (отдел кадров)).

Построение динамической модели регрессии:

$$y(t) = m_0 + m_1x_1(t) + m_2x_2(t) + m_3x_3(t) + m_4x_4(t) \quad (1)$$

Значения $X_1(t)$, ... $X_4(t)$, $y(t)$ по наблюдениям в период за последние 18 лет.

Этап 1: Построение многомерной линейной модели регрессии

$$y = m_0 + m_1x_1 + m_2x_2 + m_3x_3 + m_4x_4 \quad (2)$$

Используя программу LIN в EXCEL-е, определяем различные значения, результаты вычисления по этой программе даны в виде таблицы 2.

Таблица 2

Результаты вычисления

M_4	M_3	M_2	M_1	M_0
0,011048	0,006577	0,005455	-0,007194	-29,60022
0,00639	0,001442	0,001883	0,001418	15,57365

0,860802	2,141448	#H/D	#H/D	#H/D
20,09803	13	#H/D	#H/D	#H/D
368,6624	59,61542	#H/D	#H/D	#H/D

первая строка – коэффициенты m_4, m_3, m_2, m_1, m_0 .

вторая строка – стандартные значения ошибок для коэффициентов $se_4, se_3, se_2, se_1, se_b$.

Отметим, что se_1, se_2, \dots, se_n – это есть стандартные значения ошибок для коэффициентов m_1, m_2, \dots, m_n , se_b – стандартное значение ошибок для постоянной «в» ($se_b = \#H/D$, если – имеет значение ЛОЖЬ); sey – стандартная ошибка для оценки «Y»; r^2 – коэффициент детерминированности. Сравниваются фактические значения «Y» и значения, получаемые из уравнения прямой, по результатам сравнения вычисляется коэффициент детерминированности, нормированный от «0» до «1». Если он равен «1», то имеет место полная корреляция с моделью, т.е. нет различия между фактическим и оценочным значениями «Y». В противоположном случае, если коэффициент детерминированности равен «0», то уравнения регрессии неудачно для предсказания значений «Y»; $F-F$ – статистика или F – наблюдаемое значение. F -статистика используется для определения того, является ли наблюдаемая взаимосвязь между зависимой и независимой переменностью случайно или нет; df – степени свободы. Степень свободы полезна для нахождения F – критических значений в статистической таблице; $ssreg$ – регрессионная сумма квадратов; $ssresid$ – остаточная сумма квадратов.

Тогда:

$M_4 = 0,011048144$	$\hat{S}_{M_4} = se_4 = 0,00639$
$M_3 = 0,006577474$	$\hat{S}_{M_3} = se_3 = 0,001442$
$M_2 = -0,005455183$	$\hat{S}_{M_2} = se_2 = 0,001883$
$M_1 = -0,0071936$	$\hat{S}_{M_1} = se_1 = 0,001418$
$M_0 = -29,60022228$	$\hat{S}_b = se_b = 15,57266$
$\Sigma = 0,860802$	$sey = 2,141448$
$F = 20,09803$	$df = 13$
$ssreg = 368,6624$	$SS_{ост} = 59,61542$

Модель (2) запишется в виде:

$$Y = -29,60022228 - 0,0071936X_1 + 0,005455183X_2 + 0,006577474X_3 + 0,011048144X_4 \quad (3)$$

Проверим значимость уравнения регрессии (3) предполагая, что ошибка регрессии « ε » имеет нормальный закон распределения. Учитывая количество лет (18) для $\alpha = 0,05$ и степени свободы $\nu_1 = n - df - 1 = 18 - 3 - 1 = 14$ $\nu_2 = df = 13$ (n – число наблюдений). Находим критическое значение $F_{0,05}(14,13) = 5,91$. Так как $F_{\text{набл.}} = 20,09803$ намного больше $F_{\text{кр}} = 5,91$, то гипотеза $H_0: m = 0$ отвергается, т.е. хотя бы один элемент вектора $m = (m_0, m_1, m_2, m_3, m_4)^T$ не равен нулю («Т» – знак транспонирования матрицы). Следовательно, регрессию (3) можно использовать для предсказания.

Проверим теперь значимость отдельных коэффициентов регрессии. При нормальном законе распределения ошибки « ε » статистики:

$$t_i = \frac{m_i}{S_{m_i}} \quad (i = 0, 1, \dots, 4)$$

По закону распределения Стьюдента (t – распределению) по степени свободы $\nu = n - k - 1 = 18 - 4 - 1 = 13$ (k числу входных перемен). Критические значения t – распределения $t_{0,2}(13) = 1,345$; $t_{0,1}(13) = 1,771$; $t_{0,05}(13) = 2,160$.

Тогда:

$$1) \quad t_1 = \frac{m_1}{S_{m_1}} = - \frac{0,007194}{0,001418} = -5,073$$

Так как $|t_1| > t_{0,05}(13)$, то гипотеза $H_1: m_1 = 0$ отвергается и с вероятностью $P=1 - 0,05 = 0,95$ принимается, что $m_1 \neq 0$.

$$2) \quad t_2 = \frac{m_2}{S_{m_2}} = - \frac{0,005455}{0,001883} = 2,896$$

$|t_2| > t_{0,05}(13)$ следовательно, гипотеза $H_2: m_2 = 0$ отвергается и с вероятностью $P=1 - 0,05 = 0,95$ принимается, что $m_2 \neq 0$.

$$3) \quad t_3 = \frac{m_3}{S_{m_3}} = - \frac{0,006577}{0,001442} = 4,56$$

$|t_3| > t_{0,05}(13)$, гипотеза $H_3: m_3 = 0$ отвергается и с вероятностью $P=0,95$ принимается, что $m_3 \neq 0$.

$$4) \quad t_4 = \frac{m_4}{S_{m_4}} = - \frac{0,011048}{0,00639} = 1,728$$

$|t_4| > t_{0,2}(13)$ следовательно, гипотеза $H_4: m_4 = 0$ отвергается и с вероятностью $P=1 - 0,2 = 0,8$ принимается, что $m_4 \neq 0$.

Этап 2. Для каждой из выходных переменных построены наилучшие нелинейные регрессии (с коэффициентом нелинейной корреляции, близкие к единице), используя 2Д – программу. Коэффициенты этих регрессий даны ниже:

$$X_1(t) = a_1 + b_1 t \wedge 2 + c_1 \ln t + d_1 / t \wedge 2 \quad (4)$$

$$a_1 = -3 \cdot 3047e + 11$$

$$b_1 = -2705 \cdot 06175$$

$$c_1 = 4 \cdot 34658e + 10$$

$$d_1 = 4 \cdot 36515e + 16$$

$$X_2(t) = a_2 + b_2 t \wedge (0,5) + c_2 \ln t + d_2 \ln t / t \wedge 2 \quad (5)$$

$$a_2 = -4 \cdot 2879e + 11$$

$$b_2 = -2 \cdot 4563e + 09$$

$$c_2 = 6 \cdot 98171e + 10$$

$$d_2 = 4 \cdot 19449e + 15$$

$$X_3(t) = a_3 + b_3 t \wedge (1,5) + c_3 + \wedge (0,5) \ln t + d_3 (\ln t) \wedge 2 \quad (6)$$

$$a_3 = 2 \cdot 26618e + 11$$

$$b_3 = -511300 \cdot 448$$

$$c_3 = 9 \cdot 27771e + 08$$

$$d_3 = -8 \cdot 5897e + 09$$

$$X_4(t) = a_4 + b_4 t \ln t + c_4 t \wedge (0,5) \ln t + d_4 \ln t / t \wedge 2 \quad (7)$$

$$a_4 = -2 \cdot 279e + 10$$

$$b_4 = -1 \cdot 1589e + 06$$

$$c_4 = 1 \cdot 123e + 08$$

$$d_4 = 1 \cdot 17559e + 15$$

$$Y(t) = M_0 + M_1 * 1(t) + M_2 * 2(t) + M_3 * 3(t) + M_4 * 4(t) \quad (8)$$

$$M_4 = 0,011048144$$

$$M_3 = 0,006577474$$

$$M_2 = 0,005455183$$

$$M_1 = -0,0071936$$

$$M_0 = -29,60022228$$

Таким образом, мы получили динамическую регрессию (t) с коэффициентами m_0, m_1, m_2, m_3, m_4 и аппроксимационными функциями $X_1(t), \dots, X_4(t)$. Подставляя в это уравнение значения $t = 2013, 2014$ и т.д., мы получим прогнозные значения $Y(t)$, в предположении, что структура процесса

сохраняется в прогнозном периоде. На рис. 1 приведены графики фактической функции $Y(t)$ (сплошная линия) и аппроксимации $Y^{\wedge}(t)$ по регрессии (1) (пунктирная линия) в периоде 1995 – 2012 гг.

$$X_1(i) = a_1 + b_1 \cdot i + c_1 \cdot i^{\wedge}(1,5) + d_1 \cdot i^{\wedge}(2,5)$$

$$a_1 = 11161 \cdot 74954$$

$$b_1 = -2018 \cdot 84204$$

$$c_1 = 625 \cdot 2507446$$

$$d_1 = -12 \cdot 7730967$$

$$X_2(i) = a_2 + b_2 \cdot i + c_2 \cdot i^{\wedge} \Lambda_2 + d_2 (\ln(i)) \Lambda_2$$

$$a_2 = 6617 \cdot 842191$$

$$b_2 = 1537 \cdot 769774$$

$$c_2 = -19 \cdot 8711277$$

$$d_2 = -2569 \cdot 43887$$

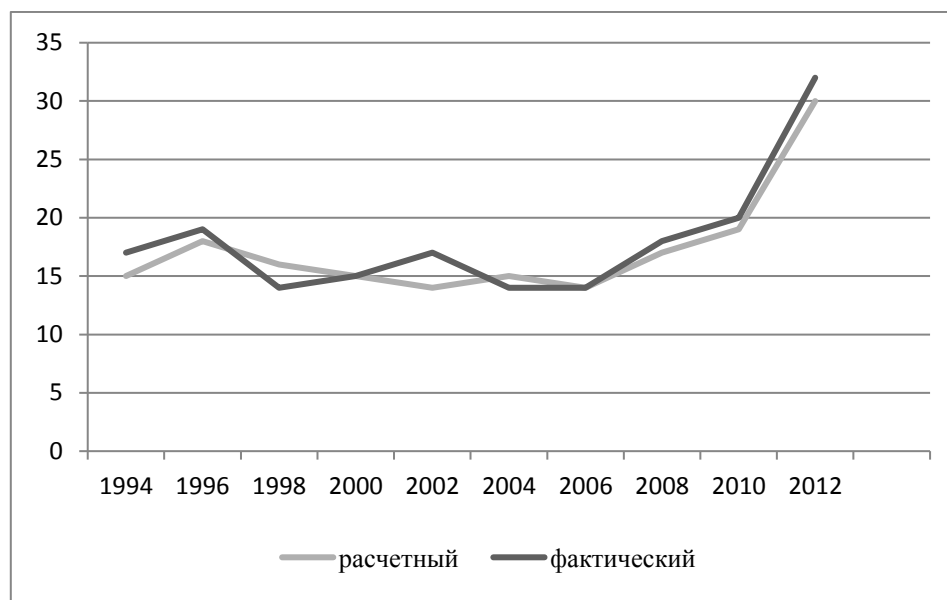


Рисунок 1. Связь фактической функции и аппроксимации по регрессии

$$X_3(i) = a_3 + b_3 \ln(i) + c_3 \ln(i) / i + d_3 / i^{\wedge}(1,5)$$

$$a_3 = -17710 \cdot 6236$$

$$b_3 = 5557 \cdot 452769$$

$$c_3 = 28735 \cdot 18261$$

$$d_3 = 20705 \cdot 74266$$

$$y = a_4 + b_4 \cdot i^{\wedge}(2,5) + c_4 \cdot i^{\wedge} \Lambda_3 + d_4 \cdot i^{\wedge}(0,5) \ln(i)$$

$$a_4 = 4349 \cdot 904283$$

$$b_4 = 5 \cdot 708994369$$

$$c_4 = -1 \cdot 12100689$$

$$d_4 = -181 \cdot 674857$$

$$Y(i) = M_0 + M_1 \times 1(i) + M_2 \times 2(i) + M_3 \times 3(i) + M_4 \times 4(i)$$

$$M_4 = 0,011048144$$

$$M_3 = 0,006577474$$

$$M_2 = 0,005455183$$

$$M_1 = -0,0071936$$

$$M_0 = -29,60022228$$

Анализ показал, что за рассматриваемый период в АО «Озенмунайгаз» между фактической и расчетной численностью работников, занимающихся вопросами управления персоналом, в целом принципиального отличия не наблюдается. Однако в отдельные годы разница между ними колеблется от минус одного до плюс пяти человек. Это говорит о том, что в исследованном АО по функциям «Управление персоналом» соблюдалось нормативное значение. Однако вполне возможно, что по другим функциям управления это соотношение не соблюдается. В любом случае в АО расчет необходимой численности следует осуществлять в зависимости от факторов сложности производства.

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The solving of the chemistry exercises with the help of inequalities

Abstract: The article examines exercises with non-standard content, in the solving of which, difficulties often occur. These are caused by their continuity, the necessity to analyze and give reasoning. In order to solve these kind of exercises, there is a need to construct an inequality or a system of inequalities and then solve them. The solving of the chemistry exercises with the help of inequalities strengthens the interdisciplinary connection with mathematics.

Keywords: exercises with non-standard content, inequality, a system of inequalities, continuity, necessity, to analyze, to give reasoning, interdisciplinary connection.

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Решение задач по химии с помощью неравенств

Аннотация: Статья рассматривает «нестандартные» по содержанию задачи, при решении которых часто возникают трудности, объяснимые именно их непривычностью, необходимостью анализировать и рассуждать. Для решения таких задач требуется составить системы уравнений или неравенства. Решение задач по химии с помощью неравенств закрепляет межпредметную связь с математикой.

Ключевые слова: нестандартные по содержанию задачи, непривычность, необходимость, анализировать, рассуждать, неравенство, межпредметная связь, математика.

Важнейшая цель обучения предметам естественно-научного цикла – развитие мышления учащихся. Психологи определяют мышление как процесс решения задач и проблем [1]. Известно, что решение химических задач имеет важную роль в процессе обучения химии. При решении задач, химические знания становятся более действенными, легко устанавливаются межпредметные связи химии с учебными дисциплинами естественно – математического цикла. В отдельных случаях, уравнения однозначно не определяют искомые величины, в дополнение к уравнениям можно составить неравенства [3].

В процессе решения задач, касающихся газов, иногда полезно использовать информацию, которую можно представить в виде неравенств. В ряде случаев их можно составлять на основе известных свойств газов. Например, средняя молярная масса газа, состоящего из молекул различных соединений, находится в пределах значений молярных масс этих соединений. В алгебраических уравнениях отношение объемов реагирующих газов иногда удобно заменять отношением количеств веществ газов.

Задача 1. Относительная плотность по водороду (D_{H_2}) равномолярной смеси двух алкенов равна 21. Определить качественный состав смеси.

Решение:

$$M_{\text{ср}} = \frac{M_1 + M_2}{2}; \quad M_{\text{ср}} = 2 \cdot 21 = 42.$$

Зная, что средняя молярная масса газа, состоящего из молекул различных соединений, находится в пределах значений молярных масс этих соединений, можно написать:

$$M_2 > 42 > M_1.$$

Единственный алкен, молярная масса которого < 42 – этилен ($M_1 = 28$ г/моль).

$$42 = \frac{28 + M_2}{2} \implies M_2 = 56 \text{ г/моль.}$$

Используя общую формулу алкенов можно найти второй алкен:

$$C_nH_{2n} \implies M_2 = 14n \implies 14n = 56 \implies n = 4 \implies C_4H_8 \text{ – бутен}$$

Ответ: Этен и бутен

Стандартные текстовые задачи, в которых условия записываются в виде уравнений, число которых равно числу неизвестных, обычно не вызывают особых затруднений. Что же касается «нестандартных» по содержанию задач, то при их решении часто возникают трудности, объяснимые именно их непривычностью, необходимостью анализировать, рассуждать, а не просто формально решать системы уравнений или неравенств.

На выпускных экзаменах по химии часто предлагают задачи, в которых условие задано в форме некоторого текста, как правило, без формул и даже без буквенных обозначений неизвестных. Для решения таких задач на основе условий, предъявленных в тексте, требуется составить неравенства или систему неравенств, а затем решить их. Интерес к таким задачам вполне понятен, они способствуют развитию логического мышления, умению самостоятельно проводить небольшие исследования [2].

Для выяснения вопроса, как относятся учителя химии средних образовательных школ к решению задач с помощью неравенств, проводили открытое анкетирование.

Анкетирование – это опрос по опросному листу для получения ответов на заранее составленную систему вопросов. Оно бывает открытым (свободные ответы отвечающего), закрытым (выбор ответа из ряда предлагаемых) и смешанным. Основная особенность применения этого метода состоит в том, что уже при формулировании вопросов надо отчетливо представлять их цель, возможность проведения количественной обработки и выявления предполагаемых зависимостей.

АНКЕТА

Просим Вас принять участие в исследовании, целью которого является изменение программы химии на курсах повышения квалификации учителей школ РА.

I.	Вопрос	Ответ
1.	Что такое неравенство?	
2.	Что значит решить неравенство?	
3.	Какие правила используют при решении неравенств?	

II. На уроках химии решаете ли Вы задач с помощью неравенств?

Да Нет Редко

III. Дайте решение задачи [4]:

Задача 2. При охлаждении продуктов полного сгорания смеси пропена, 1-бутина и паров хлорпропена образовалось 2,74 мл жидкости с плотностью 1,12 г/мл. При взаимодействии полученной жидкости с раствором карбоната натрия выделяется 224 мл газа (н.у.). Вычислите минимальный и максимальный объем кислорода, который необходим для сгорания исходной газовой смеси (н.у.).

Ответ: $4,82 \text{ л} < V(\text{O}_2) < 5,49 \text{ л}$.

Результаты, полученные в ходе проводимого исследования, позволяют констатировать, что ситуация не является удовлетворительной. Было опрошено 200 учителей из разных регионов Армении, из которых только 20 % правильно ответили на вопросы касающихся неравенств (I-1,2,3).

На вопрос (II) - решаете ли Вы задачи на уроках химии с помощью неравенств? 90 % опрошенных выбрали третий вариант – "Редко".

Предлагаемую задачу решила основная часть опрашиваемых. Это объясняется наличием данной задачи в подготовительных сборниках ЕГЭ.

Неравенства чаще всего определяют границы возможных значений степеней окисления элементов, молярных масс соединений, зарядов ионов и др. Так, например, число, определяющее молярную долю элементов в соединении, не может быть отрицательным, или превышать единицу: $0 \leq \omega \leq 1$, молярная масса кислоты не может быть больше молярной массы соли этой кислоты и др.

Иногда в задачах, связанных с составом веществ, рассматривают величины, которым свойственно принимать только некоторые, вполне определенные значения. Чаще всего это молярные массы, степени окисления, заряды ионов и др. В результате решения системы уравнений и неравенств находят пределы возможных числовых значений неизвестных величин. Среди бесконечного множества значений только одно или несколько имеют физический смысл. Таким образом приходят к однозначному ответу или к ограниченному количеству вариантов решения задачи.

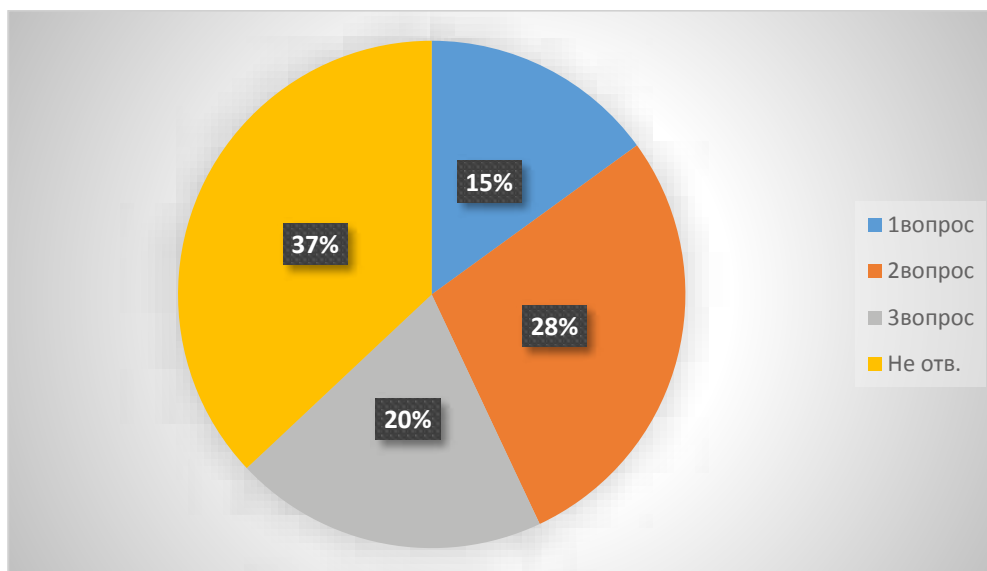


Рис. 1. Результаты опроса I (1,2,3)

На курсах повышения квалификации учителей химии мы подробно рассматривали решение разных задач с помощью неравенств и проверяли результат. 80 % учителей свободно решили и сами составили подобные задачи. Ниже приведен пример решения одной интересной задачи, составленной учителями.

В преобладающем большинстве случаев ход решения таких задач строится так: обозначаем буквами неизвестные величины и формулируем их физический смысл; словесно формулируем смысл уравнений и неравенств, которые затем записываем с помощью символов; подставляем числовые значения; решаем систему уравнений и неравенств и даем ответ.

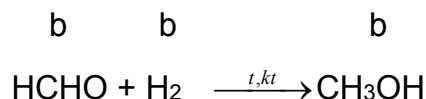
Задача 3. Имеется смесь формальдегида и водорода, которая на 25 % легче метана. После пропускания этой смеси над нагретым катализатором смесь стала тяжелее метана. Определить области возможных значений выхода реакции (%).

Решение:

Определим среднюю молярную массу исходной газовой смеси ($M_{\text{ср}}$):
 $M_{\text{ср}} = 0,75 \cdot M(\text{CH}_4) = 0,75 \cdot 16 = 12$ г/моль; ($M(\text{CH}_4) = 16$ г/моль). Пусть имелось 1 моль исходной газовой смеси, в которой содержалось a моль формальдегида, а остальные $(1-a)$ моль, это - водород. Среднюю молярную массу этой газовой смеси можно рассчитать по формуле:

$$M_{\text{ср}} = 30 \cdot a + 2(1-a) = 12 \quad (M(\text{HCHO}) = 30 \text{ г/моль}, M(\text{H}_2) = 2 \text{ г/моль}).$$

Решая это уравнение получим: $a = 0,357$ и $1-a = 1-0,357 = 0,643$ Т.е. в 1 моль исходной газовой смеси содержится 0,357 моль формальдегида и 0,643 моль водорода. Если после пропускания исходной смеси над нагретым катализатором смесь стала тяжелее метана, значит средняя молярная масса этой смеси стала больше 16, т.е. $M_{\text{ср}} > 16$. Рассмотрим уравнение реакции восстановления формальдегида водородом:

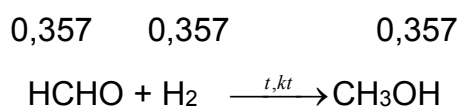


Пусть в реакцию гидрирования вступило b моль формальдегида, но таким образом, что $M_{\text{ср}}$ полученной смеси > 16 . В таком случае, $M_{\text{ср}}$ полученной смеси можно определить по формуле:

$$M_{\text{ср}} = \frac{30 \cdot (0,357 - b) + 2 \cdot (0,643 - b) + 32 \cdot b}{1 - 2b + b} > 16$$

Решая это уравнение получим: $b > 0,25$, следовательно выход реакции будет: $\eta = \frac{0,25}{0,357} \cdot 100\% = 70\%$, это и есть минимальное значение выхода реакции, удовлетворяющее условие задачи.

Определим $M_{\text{ср}}$ полученной смеси в том случае, когда формальдегид полностью (т.е. со 100 % выходом реакции) подвергался гидрированию, имея ввиду, что в исходной газовой смеси содержится избыток водорода, количество которого обуславливает значение $M_{\text{ср}}$ полученной газовой смеси, и имея ввиду, что:



$n(\text{HCHO}) = n(\text{H}_2)_{\text{расх.}} = n(\text{CH}_3\text{OH}) = 0,357$ моль, количество водорода, оставшегося после реакции;

$$n(\text{H}_2)_{\text{ост.}} = 0,643 - 0,357 = 0,286 \text{ моль.}$$

$M_{\text{ср}}$ полученной смеси определим по формуле:

$$M_{\text{ср}} = \frac{0,357 \cdot 32 + 0,286 \cdot 2}{0,357 + 0,286} = 18,7 \text{ г/моль, (M(CH}_3\text{OH})= 32 \text{ г/моль, M(H}_2\text{)= 2 \text{ г/моль),}$$

что и удовлетворяет требование задачи, поскольку $M_{\text{ср}} = 18,7$, которая больше молярной массы метана.

Таким образом, области возможных значений выхода реакции (%):

$$70\% \leq \eta \leq 100\%$$

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Paradigm of global rights in contemporary international law

Abstract: Article focuses on the paradigm of global rights in modern international law reveals the state of the global rights contained criticism of collective rights.

Keywords: global rights, collective rights, the right people, the right to self-determination right of nations.

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Парадигма глобальних прав у сучасному міжнародному праві

Анотація: Стаття присвячена парадигмі глобальних прав у сучасному міжнародному праві, розкриває стан глобальних прав, наводиться критика колективних прав, пропонується поділ зазначених прав за суб'єктивним та об'єктивним змістом, історична ґене́за глобальних прав.

Ключові слова: глобальні права, колективні права, права народу, право на самовизначення, права нації.

Демократизація міжнародно-правових відносин і лібералізація внутрішньодержавних процесів приводить до глобальних змін та нового переосмислення сучасного міжнародного права. Адже в контексті захисту прав людини більша увага приділяється розробці групових прав, таких як права народів, права нації тощо. Проте зазначені спільноти мають схожі права, які можна виділити в окрему групу – глобальні права, які помилково прийнято відносити до колективних. Незважаючи на те, що проблеми прав народів

досліджені, більшість наукових розробок у цій галузі присвячено насамперед питанням міжнародного захисту прав корінних народів та етносу, або визначенню окремих елементів внутрішньодержавного статусу спільнот та народів у правовому просторі.

Глобальні права (право народу, право нації) не є природним, оскільки вони формуються в міру становлення інтересів народу як населення держави.

Європейська традиція розглядає права народу як колективні права та асоціює з правами умовного «третього покоління». Проте критика колективних прав та необхідність конкретики поділу даної групи прав на види не досліджується. Як відзначає В. Е. Чиркін [1], питання про права певних колективів розглядається досить детально в інших галузях знань, наприклад, у цивільнім праві, але з позицій юридичної особи. Розуміння сутності колективних прав полягає в тому, що колективні права постають як індивідуальні права, реалізовані в колективі. У рамках даного підходу властивість колективу ставиться не до змісту права, а до форми його реалізації. На думку американського вченого Б. Дж. Сингера [2], колективні права - це ті права, які індивідууми мають завдяки їх колективній приналежності до соціальної спільноти. Оскільки члени такої соціальної спільноти користуються такими правами колективно, то автор вважає, що це права спільноти. Е. Р. Зайцева [1] як приклад колективних прав (приналежних кожному окремо, але реалізація яких можлива тільки разом з іншими людьми) приводить право на петицію, на об'єднання, мітинг та інші колективні права. На думку А. А. Ковальова, колективними правами можуть користуватися як увесь народ, так і нації, і окремі особи [2]. Н. О. Федосенко [1] пропонує умовну класифікацію колективних прав на 2 групи: самі колективні права, тобто ті, які можуть належати винятково колективам (право націй на самовизначення, на створення національно-культурних автономій і т.д.); колективні права із подвійною або змішаною природою, такі, які можуть одночасно належати і колективам, і окремим індивідам (право на сприятливе навколишнє середовище, на мир, на міжнародне спілкування тощо).

Серед вчених існує думка, що теоретичне конституювання категорії колективних прав у подібнім вживанні є недоцільними, оскільки колективна реалізація не міняє сутності права. Таким чином, нам представляється найбільш обґрунтований підхід, щоб розглядати групові права як правочин

певного колективного суб'єкта. На думку прихильників даного підходу, найважливішою ознакою колективних прав стає їх колективний адресат. Колективні права виникають стихійно або коли спільнота, що природно сформувалася, потребує певних прав та свобод, що передбачають можливість користуватися тими або іншими благами та забезпечувати свій захист. Таким чином, колективні права є наслідком функціонування того або іншого суспільного або громадського об'єднання, проте є формою добровільного об'єднання фізичних осіб та юридичних осіб приватного права для здійснення та захисту прав і свобод, задоволення суспільних, зокрема економічних, соціальних, культурних, екологічних, та інших інтересів. Отже, не можна до колективних прав віднести права народів та слід відокремити зазначені права в нову групу прав – глобальні права.

Глобальні права, на нашу думку, беруть свій початок з ст. 1 Міжнародного пакту про громадянські і політичні права від 16 грудня 1966 р., де вказується, що всі народи мають право на самовизначення. У силу цього права вони вільно встановлюють свій політичний статус і вільно забезпечують свій економічний, соціальний і культурний розвиток. При цьому народи для досягнення своїх цілей можуть вільно розпоряджатися своїми природними багатствами і ресурсами без шкоди для будь-яких зобов'язань, що випливають з міжнародного економічного співробітництва, заснованого на принципі взаємної вигоди, та з міжнародного права. Жоден народ ні в якому разі не може бути позбавлений належних йому засобів існування. Всі держави, в тому числі ті, які мають відповідальність за управління своїми територіями, повинні заохочувати здійснення права на самовизначення і поважати це право. Згідно з вимогами Африканської хартії прав людини і народів від 26 червня 1981 р. як конвенції, прийнятої державами Організації африканської єдності, народи мають систему особливих прав, відмінних від прав індивідів. Згідно ст. 19 Хартії всі народи рівні; вони користуються рівною повагою і мають рівні права. Ніщо не може виправдати панування одного народу над іншим.

Права народу не повинні залежати від його чисельності, кожен народ мешкає в межах території держави. Менш чисельні народи або етноси в межах самовизначеної території не повинні виступати «демографічним додатком» цієї території та мають глобальні права щодо визначення свого майбутнього розвитку.

На наш погляд, такий підхід містить справедливий та рівний механізм реалізації права на самовизначення як глобального права і забезпечується нормами Статуту ООН - рівноправність великих і малих націй та принцип міжнародного права такий як право народів на самовизначення. Право народів на самовизначення означає право кожного народу самостійно вирішувати питання про форму свого державного існування, вільно встановлювати свій політичний статус, здійснювати свій економічний та культурний розвиток. Цей принцип разом з іншими принципами ООН ставить за мету «розвивати дружні відносини між націями на основі поваги принципу рівноправності та самовизначення народів».

Цікавим рекомендаційним міжнародним актом у сфері прав народів є Загальна декларація прав народів 1976 р., прийнята Алжирською конференцією національно-визвольних рухів. У преамбулі цього акта вказується, що всі народи світу мають рівне право на свободу, право звільнитися від будь-якого іноземного втручання і мати уряд, вибраний ним самим, право, якщо вони поневолені, боротися за своє визволення, право користуватися в своїй боротьбі допомогою з боку інших народів. При цьому констатується, що «справжня повага прав людини передбачає повагу прав народів». Права народів в Декларації 1976 розділені на чотири групи: право на існування; право на політичне самовизначення; економічні права народів; право на культуру.

На думку сучасних дослідників, самовизначення народів має здійснюватися на основі всебічного захисту прав людини. Відповідно, право ставить можливість правомірної зміни кордонів держави на основі права народів на самовизначення в залежності від виконання цією державою умов, які, по суті, зводяться до дотримання принципу загальної поваги прав людини. Для вирішення проблеми застосування принципів рівноправності і самовизначення народів і територіальної цілісності держав сьогодні лунають пропозиції встановити умови, за яких право на самовизначення може бути реалізовано у формі утворення нової держави, а також розробити механізми правового реагування у разі порушення основних прав і свобод народів.

Цікавим є той факт, що у доктрині й у міжнародних документах уживаються різні за значенням терміни «народ» та «нація». Хоча варто зауважити, що у більшості відомих в історії випадків статус суб'єкта міжнародного права визнавався не стільки за народом чи нацією, що боролися

за незалежність, скільки за національно-визвольними рухами, які були втіленням цієї боротьби. Крім того, і «народ», і «нація» є поняттями достатньо розмитими, натомість як національно-визвольні рухи набагато краще організовані та структуровані. Розглянемо з позиції мовознавства, що значить термін «народ». Загалом, термін позначає сукупність людей, що живуть в державі та можна вважати, що для кожної держави народ є населення. Друге значення терміну «народ» пов'язано з історичною спільністю людей (нацією). Проте поділ народу за національною ознакою є певним видом дискримінації.

Сутність поняття народу як соціально-історичного явища та наявність його невід'ємних прав розглядалось ЮНЕСКО. У підсумковому документі 1989 року група експертів прийшла до висновку, що народ - це група індивідів, яка відповідає ряду або всім наступним ознаками: загальна історична традиція, расова та етнічна спільність, мовна спільність, загальні релігійні і ідеологічні ознаки, територіальна єдність, загальна економіка життя. Народ як група не повинні обов'язково мати значну чисельність, але повинні становити щось більше, ніж просте об'єднання індивідів. Народ також повинен прагнути, щоб його вважали народом, повинен мати самосвідомість народу; мати установи та інші засоби для прояву своїх характеристик і свого прагнення до спільності.

Також слід зауважити, що статут ООН прийнятий від імені народів та назва цієї міжнародної організації в українській мові містить слово «нація». Проте в англійській мові слово «nations» означає не тільки «нації», але «народи», «країни», «держави». Саме народам та державам присвячений Статут ООН та закріплює права народів на самовизначення, рівність і розвиток як основні принципи міжнародного права. Статут ООН приймався в епоху краху колоніальної системи країн Африки, Азії, Тихого океану тощо. Процес деколонізації змінив світ та саме в цей період виникло багато незалежних суверенних держав, відроджена національна самосвідомість та культура, сприяння зміцненню миру і безпеки народів, розвитку їх співпраці в усіх сферах суспільного-державного та міжнародного життя. Декларація про принципи міжнародного «невід'ємного» права народу на самовизначення, а Заключний акт Наради в Гельсінкі наголошує, що це право на самовизначення належить народам завжди. У цій же Декларації вказується, що способами здійснення права на самовизначення може бути «створення суверенної і незалежної

держави, вільне приєднання до незалежної держави або об'єднання з ним, або встановлення будь-якого іншого політичного статусу».

В. Кочарян розглядає самовизначення як більш широкий принцип, що не обмежується питаннями сецесії та припускає, що з точки зору сучасного міжнародного права всі держави (унітарні і федеративні, мононаціональні і поліетнічні) є результатами самовизначення відповідних суб'єктів (нації, народу, нації, народів). В. Кочарян [3] вважає підставою існування будь-якої держави те, що вона є формою реалізації самовизначення відповідного суб'єкта чи суб'єктів, причому існування такої основи повинно розглядатися не як щось одноразове і відповідне моменту самого акту самовизначення, а право, яке є «невід'ємним і належить народам завжди» та самовизначення повинно розумітися як безперервний процес, базисна і перманентна константа юридичної та фактичної наявності держави. На нашу думку, така позиція повністю відповідає вищезазначеному документу ЮНЕСКО.

Проте сьогодні в міжнародному праві намітилася тенденція до дроблення великих багатонаціональних держав та створення нових суверенних держав на принципі права нації, а іноді деталізовано в праві корінного народу. Тобто народ, нація, корінний народ почав володіти певними колективними правами, зміст яких за суб'єктним складом є досить не визначеним.

Вживання терміну «колективні права людини» в правовій науці на підставі аналізу є недоречним, оскільки не вказує самих суб'єктів та носіїв. Найбільшу повноту відображає термін «колективні людські права», які представляють собою важливий інститут сучасного національного та міжнародного права. Колективні людські права викликають пошавлену полеміку в науці від вдосконалення та поділу до заперечення їх існування. Водночас такі права закріплені в ряді глобальних і регіональних міжнародно-правових актів обов'язкового і рекомендаційного характеру.

До теперішнього часу світова спільнота ще не виробила будь-яких універсальних механізмів врегулювання проблеми реалізації прав народів, а держави, що зіштовхуються з цими проблемами, створюють цілий ряд власних механізмів, що дозволяє ефективно управляти автономіями та етносами, виходячи з політичних потреб держави. Ситуація ускладнюється тим, що проблема націй на самовизначення та недержавних народів є досить зручним інструментом зовнішньої політики держав, що претендують на домінування в

геополітиці. Саме тому відокремлення та подальший розвиток парадигми, доктрини глобальних прав та розвиток глобальних прав як інституту міжнародного права, повинні змінити погляд міжнародного права на проблему прав народу.

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The status of free radical processes and lipid peroxidation in rats' liver during the subtoxic action of sodium fluoride

Abstract: The subtoxic effect of small doses of sodium fluoride on the activity of microsomal hepatocytes on 30 Wistar rats' populations in subacute experiment was investigated. The intensity of lipid peroxidation (LPO) in liver of rats which were administered orally for a long time sodium fluoride at doses of 1/10 and 1/100 LD₅₀, judged by the content of its molecular products - diene conjugates (DC), and MDA-reagents schiff bases.

Identified that oral administration of sodium fluoride to rats at doses of 1/10 and 1/100 LD₅₀ promotes statistically significant ($r \leq 0,002$) relative to the control group of animals increase in DC content in all periods of observation. If the dose 1/10 LD₅₀ most significant increase in this indicator was observed on the 10th day of the experiment - at 265%, and if the dose 1/100 LD₅₀ - 20th day an average of 234%. In rats' liver by the action of subtoxic dose of sodium fluoride - a dose of 1/10 LD₅₀, starting from the 20th day, clearly defined gradual increase ($r \leq 0,001$) of TBA-reagents relative to control - for 27, 41, 78, 133%.

Secondary end products and lipid peroxidation, which are defined under the long-term of sodium fluoride, somehow contribute to the violation of the microstructure of hepatocytes membranes, their permeability, reduce their division and regeneration and inhibition of mitochondrial respiratory chain enzymes and microsomal monooxygenase system.

Keywords: free radical processes, lipid peroxidation, sodium fluoride, liver rats.

Introduction. Investigation was performed at the Department of Clinical Pathophysiology, Topographical Anatomy and Operative Surgery at Kharkiv Medical

Academy of Postgraduate Education according to the issue "Radiotoxins' pathophysiological mechanisms on the body and methods of early diagnostics and correction".

The main biological role of fluoride and its compounds - bone formation, formation of dentin, enamel, preventing the development of senile osteoporosis. High concentrations of fluoride stimulate lipid peroxidation and inhibit antioxidant defense system. It belongs to the elements of the first class of danger - especially hazardous chemicals. Prolonged excessive intake of fluoride compounds in the composition of the body can cause pathological condition - fluorosis. Despite the significant content of fluoride in different tissues of the human body, its physiological role so far not been clarified.

The processes of free radical oxidation is an important component of nonspecific metabolic component of adaptation to the effects of stress factors, including chemical origin. Evidence of this position is confirmed by the nature of radical systems, especially on electron transport chain endoplasmic reticulum and mitochondria. Adaptive adjustment of the oxygen metabolism due, for example, to stress, xenobiotics biotransformation accompanied usually by certain shifts in the mode of formation of free radical intermediates [1,2,3].

The purpose of this study is to investigate the state of free radical processes and lipid peroxidation in the liver of rats with chronic fluoride intoxication.

Material and methods. Studies were conducted on mature rats of Wistar line weighing 180-220 g, which were kept in hospital vivarium. Rats were subjected to oral seed probe using aqueous solutions of sodium fluoride (FS) once daily for 60 days at doses of 1/10, 1/100 and 1/1000 LD₅₀, which were under 20 mg/kg, 2 mg/kg and 0.2 mg/kg body weight (FS average letal dose for rats received orally, is 200 mg/kg). The animals in the control group were injected with appropriate amounts of drinking water. Research conducted indices 10, 20, 30, 50 and 60 days after the start of the experiment. Each group had 10 animals. Slaughter was performed by decapitation guillotine knife, pre-anesthetic thiopental sodium 50 mg/kg.

The content of diene conjugates in rats' liver homogenate evaluated by spectrophotometer at 233 nm with pre-extraction with heptane izopropanol mixture [2,3,4]. The content of diene conjugates were calculated based on the molar extinction coefficient $\epsilon=2,2 \cdot 10^5 \text{ mol}^{-1}\text{cm}^{-1}$. The content of TBA-reagents in rats' liver homogenate was determined by reaction between malondialdehyde and

tiobarbiturats acid (TBA), which at high temperature and acidic environment is to form trymetynes colored complex with maximum absorption at a wavelength of 532 nm [5]. Number reagents TBA-calculated was based on the molar extinction coefficient $\epsilon=1,56 \cdot 10^5 \text{ mol}^{-1}\text{cm}^{-1}$. The level of schiff bases - products of interaction of carbonyl compounds and amins groups of proteins, amino acids, nucleic acids – was measured in the liver homogenate by spectrofluorometer at a wavelength of 360 nm excitation and emission wavelength of 430 nm from the previous extraction by Folcha mixture (chloroform-methanol) [6].

Statistical analysis of the results was carried out using a computer application package for the processing of statistical information Statistica 6.1 (StatSoft, Inc., USA).

Results. The level of free radical processes in the liver of rats, which during the 60 days were administered in doses of FS 1/10 and 1/100 LD₅₀ evaluated the intensity of H₂O₂-induced chemiluminescence (CL). On the 10th and 20th day of the experiment statistically significant ($p<0.001$) relative to the control rate of increase in case action FS in a dose 1/10 LD₅₀, respectively, 37 and 134%. On the 30th day registered a slight decrease (37%) of CL intensity in relation to the value of the previous observation period, but compared to control - increase ($p<0.001$) by 66%. It was interesting the fact that on the 60th day of oral administration to rats in doses of FS 1/10 LD₅₀ was statistically significant ($p<0.001$) reduction of 33% of CL intensity in the liver of rats compared with control. Action of FS in a dose 1/100 LD₅₀ accompanied by a fairly significant ($r\leq 0,002$) when compared to control increasing intensity superweak glow in all periods of observation, especially pronounced at the 30th day - an average of 85%. In terms of level of intensity following chemiluminescence in the liver of rats gradually decreased and the 60th day administration of FS was 19%.

It is proved that any violation of dynamic equilibrium between pro- and antioxidants in many pathological conditions displayed on CL intensity biological substrates [4,5]. Given this increase in intensity of rat liver homogenate CL for actions in the UNFPA doses of 1/10 and 1/100 LD₅₀ can be explained by a shift prooxidant-antioxidant balance toward increased formation of pro-oxidant, including the AFC. But recently in the literature widely discussed the involvement of ROS in signal transduction from the receptors to the cell nucleus and being dependent ROS regulation of redox signaling system [6, 7, 8].

The peculiarity of the latter is a property of ROS cause the expression of genes, the products of which have antioxidant activity, which leads to increased buffer capacity and restoring redox homeostasis. However, the continued generation of abnormally large amounts of ROS can cause persistent changes in signal transduction and gene expression, impaired redox balance of the cells of oxidative stress, apoptosis and dysregulation as a consequence of pathological conditions.

One should emphasize the fact that a large number of ROS acts as inducers of oxidative damage to macromolecules basic cell, primarily proteins, in violation of their functional activity [9]. Changing any component of redox homeostasis leading to its imbalance of compensatory reactions on the local level, which probably arises under conditions of FS effects on rats show increased intensity and refrigerator. The prevalence of nonspecific oxidative stress in cells entails the use of energy substrates and proteins are important to balance the redox system. Depending on the length of oxidative stress and antioxidant system functional reserves depletion occurring reparation and adaptation of the organism, which is probably on the 60th day oral dose of FS 1/10 LD₅₀ and confirmed a reduction in the intensity of CL homogenate of rats' liver.

The intensity of LPO in liver of rats which were administered orally for a long time by FS doses 1/10 and 1/100 LD₅₀, judged by the content of its molecular products - diene conjugates (DC), TBA-reagents and schiff bases. The results showed that oral administration to rats in doses of FS 1/10 and 1/100 LD₅₀ promotes statistically significant ($r \leq 0,002$) relative to the control group of animals increase in GC content all the time monitoring. If the dose was 1/10 LD₅₀ the most significant increase in this indicator was observed on the 10th day of the experiment - at 265%, and if the dose 1/100 LD₅₀ - 20 th day an average of 234%. In the liver of rats toxications FS, and it was also increasing the content of TBA-reagents. On the 10th day of the experiment increase in score when compared with the value in control was unreliable for both doses ($p=0.059$ and $p=0.199$). If the dose 1/10 LD₅₀, starting from the 20th day, clearly defined gradual increase ($r \leq 0,001$) of TBA-reagents relative to control - for 27, 41, 78, 133%. Similar dynamics was characterized by change and action to FS in a dose 1/100 LD₅₀ - an increase of TBA-reagents was 19, 73, 70 and 99%, respectively, 20, 30, 50 and 60th day of observation. On the 10th and 20th day of FS action doses 1/10 and 1/100 LD₅₀ when compared to control statistically significant changes in the content of the end products of lipid peroxidation - schiff

bases was observed. The results showed a significant gradual increase ($p < 0.001$) of this indicator at 30, 50 and 60th day - the 172, 370 and 380% respectively. A similar, but less pronounced dynamics was found to 1/100 the dose LD_{50} - 103, 173 and 169%.

In general, the results obtained reflect the initiation of LPO process that can be viewed as a mechanism response on organism rats on long-term effect of FS. Dynamics of LPO products content has a certain dependence on the term of the FS. In the initial stages (10 and 20 days) oral doses of FS 1/10 and 1/100 LD_{50} recorded a marked increase in primary products of lipid peroxidation - DK, indicating that the initial activation process chain. DK is the most volatile products of lipid peroxidation, increase of their level usually reflects the significant impact of the intensity of the pro-oxidant, such as ROS [10,11].

The logical consequence of activation of lipid peroxidation in the liver of rats under FS action is to increase secondary products - TBA-reagents (especially since the 30th day), indicating a more intense and deep course of the process. But in rat liver, beginning with the 50th day of action FS LPO activation is more pronounced at the formation of end products - schiff bases are seen as indicators of chronic processes of free radical oxidation. Secondary end products and lipid peroxidation, which are under long-term FS somehow contribute to the violation of the microstructure of hepatocytes membranes their permeability, reduce their division and regeneration and inhibition of mitochondrial respiratory chain enzymes and microsomal monooxygenase system [12-15].

To confirm the orientation of the dynamics of lipid peroxidation in rats under conditions of prolonged exposure to doses of FS 1/10 and 1/100 LD_{50} calculated the ratio schiff bases/(DC+TBA-reagents). Proved statistically significant ($r \leq 0,016$) relative to control reduction coefficient of 10 and 20th day dose in steps UNFPA 1/10 LD_{50} respectively 63 and 59%, while 30, 50 and 60th day, on the contrary, increased respectively by 16, 92 and 120%. In oral administration at a dose of FS 1/100 LD_{50} value ratio decreased to 10, 20 and 30th day of the experiment (respectively 69, 70 and 11%) and 50 and 60th day – increase to 17 and 32% by relative to control values.

Conclusion. The observed increase in the coefficient of correlation schiff bases/(dienes+TBA-reagents) in the liver under the action of UNFPA clearly indicates

the direction of LPO towards the formation of toxic end products - schiff bases and reduce the activation of POL at the formation of primary and secondary products.

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***Architecture of choice – advices of behavioral economics
is the new book by professor Dimitar Kanev***

Abstract: Dimitar Kanev is professor and doctor of economic sciences. He is one of the known and established Bulgarian scientists, whose major interests are connected with the general economic theory, behavioural theory, economics and management of education and economics of labour. He is professor at Nikola Vaptsarov Naval Academy in Varna and at Chernorizets Hrabar Varna Free University.

The present work comes outside the traditional scientific works of Prof. Dimitar Kanev. Here he seeks explanations from various science aspects, where he expresses his attitude and grounds specifically and clearly his particular position. Achieving that very result would not be possible without the worldly and scientific experience; it either cannot be result of only scientific research without having as component what occurs in real life. Far from the philosophical ratiocinations that inevitably come to each reader, we have to note and pay special attention to the human behaviour interpretation in particular situations.

The goal of the present work is to help the reader understand human behaviour and human choices in more details, the way we think and what the system deformations in our thinking are, to get to know and avoid behavioural mistakes and delusions in the self decisions and actions; to improve self-control and consistency between intentions and actions; to identify somebody else's influences on oneself and to prevent from the ones that are not of self-interest; to take ethically advantage of the decisions and actions of the others and to help them in achieving their own goals; to comprehend what state policy of intervention in the individual decisions is most appropriate for maximizing individual wealth and achieving public goals. This,

beyond any doubt, would improve personal life and professional relations as well as the possibilities for career progress, as well as the way one views the environment and the people in general. All that would help us in establishing a better world.

In order to achieve that goal, the author analyses human behaviour and actions, enriching the view of the social sciences' „queen” – economics, by upgrading the understanding about the “economical person” (homo economicus), who, by definition is rational and possesses unlimited possibilities to acquire and process necessary information, learns from his mistakes and thus is never systematically wrong and reacts an expected way to the incentives created by market and public institutions, is ego-centric and has the will to realize his aims. Here he leans on the achievements of all behavioural sciences and will put in the limelight not the idealized picture of the “economical person” (homo economicus), but the “normal person” (homo sapiens), who is limited within his egoism, rationality and will.

The work is divided structurally into five chapters.

The first chapter lays the foundation of the further analysis. There human decisions are represented as product of two mental systems – automatic and rational. It reveals the characteristics and tasks of each system and assesses how effectively they manage the problems, why they fail and why their failures cannot be easily prevented. It also presents the principal possibilities for influencing both systems – the paternal approach, the libertarian conception and the compromise between them – the „libertarian paternalism” and the connected tools for “jogging” towards the “correct” behaviour and decisions through appropriate “architecture” of the environment of choice.

The second chapter observes the deformations in the assessment of the probability for the occurrence of various outcomes that are connected with the heuristic way we take decisions in the conditions of cognitive limitations, uncertainty and time deficit. Heuristics are irreplaceable in achieving the quested satisfying sufficiency of decisions and have significant advantages compared to the analytical and statistical methods. However, they may lead to systematic mistakes in the probabilities assessment. The emphasis in this chapter is on the deformations caused by the heuristics of representativeness and accessibility, anchoring, over-optimism, over-confidence, the heuristics of known, conservatism, the tendency for confirming, egoistic distortion, etc.

The third chapter studies the deformations connected with the assessments of decisions' benefits and losses. They lead to distorted assessments about the actions' consequences.

Among the examples is the exceptive sensibility towards the losses, the tendency for status quo maintenance, not recognizing the sunk and the alternative expenses, the effect of possessing, the putting of frames, the mental reckonings, reading the relative instead the absolute assessments. This chapter presents also the basic theoretical model of behavioural economics that explains choice – theory of perspectives. It also gives examples for its application.

The fourth chapter examines the limited egoism and focuses on the social preferences' influence and the understanding for justice, the social relations (family, friends, colleagues, community) and the social norms (social and moral values). It studies in more details the social environment factors' influence upon the choices and the consecutive irrational behaviour. Illustration of these is the gregarious behaviour, the effects of environment and the relative position, the commitment and consistency, inequality avoidance, the reciprocity, the quest for social proofs, conflicts avoidance, etc. The possibilities of inner and outer motivation are also presented. Each one of them in what cases has priority is also cleared and what is the interrelation between market and social stimuli.

The attention in the fifth chapter is directed towards the deformations of assessments for how present day decisions influence the future. These deformations lead to exceptive emphasis upon the present, mistakes in the prognosis of future preferences and present day decisions' consequences, limited will and self-control defects. Main problems in it are the underestimating of future benefits and damages, hyperbolic discounting, the projection and the accessibility influence upon behaviour. The issue of how we to change is also put and the answers are quested in the change of the preferences for time (development of orientation to the future and patience) and the perception of strategies for preliminary binding and consistency.

The conclusion summarizes the principles of good “architecture of choice”, its distinguishing features and major tools – the implicit options, the simplification and structuring of choices, the putting into frames, the dividing, etc. Evaluation of the relation between behavioural economy and neoclassical pyramid is also given. The main critics and perspectives in the development of the “behavioural policy” are outlined.

The founding works in this field are followed through all this – Daniel Kahneman’s „Thinking”, Richard Thaler and Cass Sunstein’s „Nudge”, Dan Ariely’s “Predictably Irrational” and „The Influence. Psychology of Persuasion“ and “Pre-suasion” by Robert Cialdini. They are irreplaceable in achieving the main task of the work – to find which are and how to take the correct decisions as well as what to be done in order decisions to be better for both, the decision-makers and the rest. Following the methodology of behavioural economics, the main results from the empiric studies in the field are presented as well as the ones from own inquiry studies.

Present work raises the interest of scientists and researchers as well as of everybody, who is engaged in the management processes and looks for decisions, while getting into various situations.

Behavioural economics completes in original way the line of prof. Dimitar Kanev, who is popular for applying traditional economic approaches, which turns him into „attractive” researcher and outlines him for his precision, his exact and clear definition of problems and for the true approaches for their solving.

He himself says: „If you succeed following me through the trip in the labyrinth of behavioural economics, which I offer by the present book, you’d undoubtedly broaden your understandings and you’d find valuable and useful answers. I hope your way to give you also the pleasure I had gotten by it“.

In conclusion, I’d like to emphasize that following one of the prominent Bulgarian brains is not only pleasure, but also a challenge in that dynamically changing time.

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Design of test systems and their significance in the education of those who want to engage in teaching

Abstract: The teaching staff and psychologists use tests as important tools on top of everything else. However, their use in learning is not limited. They became not only the evaluation tool, but also the instrument helping identify gaps in any educational material, forcing students to study, and consequently, leading them to a higher level. Tests became the primary target of education. As a result, any periodic use of tests can form some feedback. This article is devoted to the versions suggested how to design the computer test systems with the argumentation of their priorities. The Bloom's taxonomy used in the job stacking herein has assisted to develop three levels of testing complexity. In addition, the analysis of existing test systems allowed to find some "middle ground" that the author is able to use in own test systems. A stepping algorithm allowed all, who wish to design their own system of tests, doing it. Results of the test readiness and utility study became those instruments, which also allowed taking into account the advantages and disadvantages of test system designs.

Keywords: test system, evaluation tool, future teachers, and learning process.

1. Introduction

Information and communication technologies (ICTs) and their significance in the educational process are familiar to all scientists. The present use of tests has gained some wide acceptance among the members of the academic society. The study of the efficient use of tests in the future teachers' training and in the educational process involved a considerable number of teachers (Volante, 2004). However, the obtained results make possible to talk about their ambiguity dividing the audience for those who are for and those who are against their use. Tests have quite a long history of their use and genesis (Gates, 1917). Moreover, a special contribution belongs to Cattell (1890), the scientist, who used tests, for the evaluation

of students' competencies and personal as well as cognitive properties. As the issue of the effective feedback from students is very important element in any learning process (Karpicke, & Roediger, 2007), many researchers (McMillan, 2000; Matviichuk, 2012) studied them taking into account the ICT implementation in the academic process when the tests are used. Some researchers (Crocker, & Algina, 1986; Steven, 1998) believe that test standard types are unperfected. Thus, it makes impossible to assess the adequate level of material studied by the students. Scientists (Stiggins, 1999; Kathleen, 1996; Carrier, & Pashler, 1992) have discussed the use of tests, detected their effectiveness on the process of training and their good influence on students, particularly, on the retention (Roediger & Karpicke, 2006). Therefore, the problem of the effective testing design is a key issue of our time (Payne, 2003).

A primary goal herein is to search for optimal versions of test structures because of their great number in the process of training. Nevertheless, all of them have either positive or negative teachers and students' approvals. This issue is topical, as the computer became an integral part of our modern society, and to imagine the daily working hours without it is impossible.

Here is studied the optimal test system designed for the knowledge evaluation and the level of its adoption by future teachers (students) during the various forms of control.

Research Techniques

Higher education institutions (HEIs): Rivne State Humanitarian University and Taras Shevchenko Chernihiv National Pedagogical University became the basis of this study. Their students of different pedagogical specialties: preschool education, correctional education – students of the 4th and 5th courses, and computer science and information technologies, secondary education (Informatics), and secondary education (Mathematics), and secondary education (Physics) – students of the 5th courses became testees to the number of 109 people. The author developed research techniques how to organize academic activities. Written tests whose results recorded in a special Gradebook were used during the educational thematic modules.

Scientific methods like surveys, analysis of the results of computer technologies in the evaluation of future teachers' knowledge were utilized during the experiment.

Research Findings

As it turned out, teachers use different tests divided into some groups. We only distinguish three of them herein:

- 1) Authoring – such test systems that have been designed by the teachers through programs or written on the base of software programming languages;
- 2) Professional – test systems designed by the programmers under order of higher educational establishments or interested organizations;
- 3) On-line tests – tests written by the programmers, which are freely available, free of charge, can run and access through the Internet or off-line.

Comparative characteristics of the tests below was carried out in the course of investigations:

Authoring tests: 1) Testing; through a local area network; unlimited, four types of tests; kostandrey@mail.ru. 2) Test-W2; free; download a test as a file; unlimited, two types of questions. 3) MyTestXPro 11.0; relatively free; local/ network; unlimited, ten types of questions; available at: <http://mytest.klyaksa.net>.

Software products: 1) Macromedia Authorware; relatively free; local/ network; unlimited, seven types of questions. 2) OpenTEST; free; local/ network; two types of questions. 3) UTC; free; local; unlimited, three types of questions.

On-line tests: 1. Testorium; Form: free; Access through the Website; the number and types of questions – unlimited, five types of tests; available at – <http://www.testorium.net/>. 2. Online Test Pad; free; widget unlimited, twelve types of tests, available at: <http://onlinetestpad.com/ua>. 3. Master of tests; free; Widget / download a test as a file; unlimited, five types of tests; available at: <http://master-test.net/uk>.

Therefore, it should be noted that there is no perfect test system, but among available there are several, which are close to perfect. The author chooses such systems on his/her own with taking into consideration some own experience and competence.

We have selected the program Macromedia Authorware to design a test system including various types of test questions and three difficulty modes to carry out the evaluation of the learning material retention by students. It is worth pointing out that tests have a considerable number of advantages over other forms of control, but to prepare them is necessary to consider some psychological constitutions of students like cognitive, emotional, psychomotor, etc. Designing tests, we used the

Bloom's taxonomy. It (Bloom, 1994) is helpful in designing qualitative tests clearly reflecting the detailed learning objectives. The basis of the test concept based on the six levels of the Bloom's taxonomy will help change attitudes to the tests considering to be too standardized. Test questions reveal the appropriate level of the academic material including knowledge, comprehension, application, analysis, synthesis and evaluation. To improve the test system quality, we propose to divide the test questions under difficulty modes:

1) The first mode is elementary and includes the terminology awareness, knowledge of major events and basic principles. Typical types of True/ False Questions requiring answers: 'true' or 'false' or one of two proposed answer 'yes' or 'no'; Single Choice Question – choose one of several options.

2) The second mode is sufficient: establishing links, giving some explanations, and prompting analogies. Types of test questions: Multiple Choice Question – choose all the correct answers from the list; Hot Spot Question – graphic objects needs to be moved into a given area; Hot Objects Question – need to find the right items to certain properties.

3) The third mode is creative and includes the introduction of the classification, comparison, scripting and ranging. Types of test questions: Drag-Drop Question – according to the rules you need to make some shuffling of relevant subjects, Short Answer Question – enter own answer in the text field of answers.

The issue how to change the future teachers' views on the teaching and learning activities, in particular, to reduce the routine work of the teacher as much as possible, encourage the future generations to use modern technology and their various forms of training in any education process became the stimulus to design an automated system processing results. The advantages of test systems are that they reveal gaps in the awareness of the material, or stimulate students to fill them. Moreover, they allow future teachers being more organized. Such test systems liaise between the material previously studied and new ones as well as evaluate results in equal conditions. In addition, they save time in the process of checking works and belong to good motivators for the material teaching (Roediger et al., 2011).

Future teachers, namely, their attitude and readiness to the further use of electronic tools in their teaching and learning activities became the object of this study. Using a system of written questionnaires concerning the attitude to the test systems, we have concluded that today, in time of informatization, not all of the

teachers use the possibilities of the web services and programs for training materials. It should be noted that in spite of it, some teachers use modern tools like tests in the assessment of students' knowledge. In the questionnaire, for example, answering the question: 'What is your attitude to the tests being used by the teachers to test your knowledge?' only 60% of respondents were in favor of computer tests, 34.2% of the interviewed were for tests on paper and 25.8% percent were for the traditional tests. It is necessary to point out that the question: 'What are the test system weaknesses you can call?' showed that 50% of respondents selected standardization, 25% – the limited type of questions, 20% – a random selection of questions, and only 5% – anxiety.

The Program Authorware rates high among the programs for educational purposes. It allows designing a variety of advanced tools that a teacher of the higher educational establishments can use, namely, the most significant is its combinability with other components of the learning environment that is compatible with standards like IMS/ OTI and SCORM, and it is common in the online study mode. To facilitate the design of a mechanism, there were used built-in wizard helping the author if he/ she works with the program for the first time, and then, the author can easily design a top quality educational product. To do this, follow these steps:

1. Run the program Macromedia Authorware. In the dialog window 'New Project', select the 'Quiz' and click 'OK'.

2. Then, load the master necessary to set certain parameters of the test system and to preserve the project, namely, extension – 'Use Full Screen', style – corporate, the test title, the number of attempts – 1, number of questions – all and show results at the end. Login: check the box – 'show login screen start, limit user to tries before quitting' – 1. Date of passing the test: put the checkmark in front of the 'track user progress and report to, ODBC database'. The evaluation system: display check answer button, show feedback after questions is judged, passing score – 25. Responses (Feedback): positive (Positive), negative (Negative). Add questions: choose its type and required number. After that, press the button 'Done'.

3. You should also change settings of the test system icon. So, do the following steps: Windows – Panels – Properties. The panel at the bottom of the display can be configured. Tick 'Title Bar' for the system window control.

4. Then, to enter questions, click twice on the icon 'Questions'. Fill in all the fields with the Wizard, enter questions and answers, and select the correct answer by

pressing the button 'Right Answer'. Finally, press the button 'Done'. If you want to add another type of questions, simply, have to select 'Knowledge Objects' on the panel and put it on the test circuit and in the right place. Set up and enter the question with the help of the Wizard.

For the credibility of the experiment, students were arbitrarily divided into two groups: the 'Control group' (CG) studied under the conventional technique and therefore, their evaluation was at the end of the study course – 50 students; and the 'Experimental group' (EG) trained under the set of tests that are used throughout the training process – 59 students.

Obtained results of tests written by students are given: CG before the experiment: Initial level – 48,1%; sufficient level – 42,3%; high level – 9,6%. EG before the experiment: – 42,3%; sufficient level – 46,6%; high level – 11,1%. CG after the experiment: – 37,6%; sufficient level – 50,3%; high level – 12,1%. EG after the experiment: – 21,5%; sufficient level – 60,2%; high level – 18,3%.

Research findings confirm the efficiency of tests evaluating students' knowledge. In the course of investigations, the students showed their interests to the test capabilities, Web services, training programs, etc. Students expressed a desire to study more detailed the possibilities of modern ICTs. Some of them asked for some additional information to master the method of designing tests and other tools for educational purposes. Such results give reasons to talk about the important place of modern ICT in the future teachers' training. The majority of respondents (89 %) was for the tested system. The frequent use of tests makes students to study better as they have to pass them again. While working with tests, students spontaneously remember some material, and learn its portion. Actually, it is a good indicator to their use.

Conclusions

The use of tests is a good tool for the evaluation of students' knowledge gained by them in higher educational establishments. The tests have a positive impact on students' memory acquisition. Moreover, their systems provide some feedback, as well as help students determine the level of their achievements in the academic process, and what is necessary for them to study up more. As a result, they motivate students to study better. Tests perform much larger functions, as we think, as each person can extend them in own activity. However, their main function

is to carry out the assessment of students' knowledge and skills. Tests designed during some periods and tried out as the test system for the students of computer science specialties have been mainly based on the Bloom's model involving test questions with three levels of their difficulty. The EG was for the proposed tests and results obtained in this study prove it. Furthermore, the advantage of tests is that they are very important for the educational process and require changing some attitude to their use.

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Monitoring of the main components of professional competence experts demining

Abstract: The analysis of the defining features of the professional competence of specialists in mine clearance, here highlights the three key stages of professional competence in order to fulfill assigned missions: early formation of professional competence for action in extreme conditions; direct the formation of professional competence for action in emergency situations in terms of performance; maintenance of professional competence in the process of confirmation (increase) qualifications. The main components of the performance of professional competence of combat engineers to fulfill assigned tasks at each stage.

Keywords: anti-mine activities, professional competence, clearance area, stages of professional readiness.

Clearance - the process of complete neutralization and removal of mines, booby traps, improvised explosive devices, which not unexploded, explosive items from a particular area of the ground to ensure the safety of civilians. In aquatory mine clearance is often used - minesweepers, and for clearing land plot combat engineers involved in engineering units of the Armed Forces of Ukraine (AFU) and the relevant departments of the State Service for Emergency Situations of Ukraine. Clearance can be performed manually or mechanically, using emergency vehicles [1].

Since the beginning of the conflict in east Ukraine mine clearance of the Armed Forces of Ukraine are in the liberated territories of Donetsk and Lugansk regions. During demining experts have to deal with lots of stretch marks left by terrorists, mines and other munitions unexploded. During the period of ATO engineering units AFU disposed 10687 units of explosive devices, 75 of which are home-made explosives, defused 71 object of infrastructure. 94 rooms and houses in Slavyansk, Kramatorsk Artemovsk etc.; 17 railways and roads, dikes, dams, water pipes, electrical substation and overpass. Tested for the mine-explosive obstacles and explosive devices more than 1,500 kilometers of roads and railway, Defused more than 200 kilometers of roads and railway [2-4].

The problem of mine clearance after the end of armed hostilities in the East for a long time will remind of themselves, but the Ministry of Defense of Ukraine this problem in cooperation with the State of Emergency to develop demining plan released areas of the Donetsk and Lugansk regions.

As a result, with the above it should be noted that the various tasks for the Armed Forces of Ukraine will continue to be carried out work on the exploration and demining areas.

In turn, this will require extraordinary combat engineers approach, intelligence, independence and psychological readiness to work in the territory which is contaminated with explosive remnants others.

Personality characteristics listed above, allowing to cope with professional competencies and responsibilities are called mean personal ability to solve professional employee issues. They consist of theoretical knowledge of the object (of) skills and practical work with him and show of education, experience and a number of personal qualities. Given the above set of professional competencies form the professional competence as the amount of experience and knowledge, allowing people to quickly solve the problem in a particular professional field.

Formation of professional competence of combat engineers should be ensured through targeted and systematic set of measures undertaken within the psycho-pedagogical process in educational institutions, centers and engineers units.

Analysis of various sources [2, 4-7], including foreign [1,3] showed that the main tasks of the professional competence of combat engineers should be considered:

- 1) the development of a sense of duty and responsibility;
- 2) formation of servicemen skills of duty in stressful and difficult circumstances;
- 3) development of emotional and volitional stability in terms of moral, psychological and physical overload (including underwater), the capacity for effective self-regulation in the complication of the situation;
- 4) developing abilities realistically assess their level of readiness to perform professional tasks predict performance, adjust their behavior.

Professional competence of combat engineers to perform assigned tasks proposed to implement in three stages: 1) *formation of early competence* to act in

extreme conditions; 2) *direct competence* to act in extreme situations in terms of performance; 3) *maintaining competence* in the confirmation (increase) qualifications.

First stage. *Early formation of competence* to act in extreme conditions involves modeling the conditions of future operations and the formation of "psychological safety", in other words those components of combat engineers, as confidence in themselves and their training, and their colleagues, commitment, independence in making decisions, self-control, the ability to manage their emotions and so on. During this training digested knowledge about the possible development of tense situations, their essence and adequate response options, acquired the appropriate skills. We must also be aware of the causes and peculiarities of varieties of emergencies, including work with unknown improvised explosive devices. State of competency determined correct understanding of their tasks and responsibilities, knowledge to proceed on territory contaminated by explosive remnants. Must learn to anticipate and take into account the likelihood of adverse effects on the psyche of the following factors: the large number of different factors that cause decreased attention; surprise, unexpected, complication of the situation; risk of causing danger to life and health; increased responsibility for the consequences of their actions; internal conflict between the desire to avoid the danger and the need to perform professional duties; fear mistakes and punish [1,5-6].

The second stage of the formation of direct competence to act in extreme situations in terms of performance is to create real situations as early as during the real driving demining areas including the area where the fighting discussing the optimal actions and their sequence. Practice shows that the more precise and more complete picture of the situation following the more adequate methods and tools to respond to a person chooses the right time (for example, before the demining plan study area, the location of buildings, roads movement, coordinated actions of demining groups).

The studies mental condition and response to complex, risky tasks show that half of the combat engineers kept normal physiological and psychological indicators, about 30% felt the tension and uncertainty, the rest are showing signs of severe agitation and anxiety until the manifestation of the disordered activity or excessive immobilize. In the latter case is urgent warning on their ability to perform all tasks.

As previously noted, individual psychological tension greatly enhances uncertainty and possible multi-variant of the situation - so at this point is of particular

importance of timely and quality (consistent) information on the events, which in future will enable the right decision.

The most significant components of professional competence are indicators at this stage are focused mobilize personality actualization experience behavior in similar circumstances, the concentration on the task and the ways of its implementation, setting the most rational direction of their forces to overcome difficulties and achieve positive results.

Direct formation of professional competence to act in extreme situations in terms of performance is formed and fixed by means of combat missions, training and special exercises, solving situational problems, simulations close to reality directly to relevant positions and parts (units) where they are military service. Despite some convention, this step helps create knowledge and skills necessary for military clearance - effective tasks of cleaning the territory which is contaminated with explosive remnants.

Combat engineers master rational methods of work in the extreme conditions of the situation, they have formed logical thinking, inculcated ability to analyze, make comparisons, organize facts, synthesize information to form conclusions justify their proposals, decide on the tasks of mine clearance.

Bold third phase of *maintenance of professional competence* in the process of confirmation (increase) qualification due consideration of survey results combatants high probability situation changes, the emergence of new problems and obstacles which need to adapt further, for example, the use of unconventional improvised explosive devices and more. Therefore it can be concluded that the content of the stage should cover all educational matters necessary for the preparation and combat engineers conduct mine clearance, including demining and improvised explosive devices.

This is because the objective and subjective reasons engineer during military service can be a long time not to perform the task of demining or do them extremely rare. Because this can be lost knowledge and skills in dealing with explosive remnants. On the other hand, leaving the demining can be almost every day, and sometimes several times a day. In this case, the sapper loses a sense of responsibility, fear. As we know from the experience of the ATO, a high percentage (38%) occurred disruptions combat engineers through their reckless actions in early life and in the end - 42%. The remaining interest in the middle of service. This

indicates that the early service engineers are dying due to lack of experience, and at the end of its surplus and loss of a sense of caution. In addition, the specificity of experts on mine clearance involves long waiting times of danger, which creates boredom, drowsiness, depression or excessive stimulation, affective outbursts. When an emergency situation such negative states of course lead to a breach of cognitive, emotional and volitional processes and the occurrence of adverse results [6].

Remember that, in extreme situations, the situation between perception and action - sometimes even minutes, and seconds. Therefore, the problem of professional competence of combat engineers on the implementation of assigned tasks in the context of a professional identity formation - one of the most important for general and educational psychology. The value of the concept of professional competence that is relevant for today's professional combat engineers, especially when the state's participation in combat requires a rethinking of its content and features on methodological and experimental level. Research in this area is based on the study and pedagogical justification means of training and improving training combat engineers.

Professional competence combat engineer as the integral formation of the person, which is a selective focus on educational activities, there is a motivated and positive attitude directed respective needs and motives for this activity. On existing competence this stage can only speak on condition a clone of such components as emotional attitude, ability to adapt their behavior according to the situations that arise during the clearance ability to build process of combat missions, formation of educational abilities like thinking, ideas, observation, communication skills and a wide range of professionally important qualities: emotional stability, self-control and perseverance [7].

So we were able to identify the components of the professional competence of specialists in mine clearance, stages of development and the need for a complex of pedagogical conditions for their proper level formation.

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Influence mechanism of the ecological factors to development of fencricket

Abstract: We learnt bio ecological features of fencricket in the Ganja-Gazakh region of the Azerbaijan Republic. Investigations on learning of the factors restricting the areal of the spreading have been carried out. Factors influencing to the manner of active life have been found out in the winter period.

Keywords: potato, pest, Fencricket, bio ecological features, factors of limited, areal the spreading, the becoming aired, metabolism, soil and so on.

INTRODUCTION. The innovations take an important place of developing of the agro area. The reason is that, it paves the way to pollution environment of parameters which including to the growing technology, gathering poison, remainders in harvest, creating danger to healthy of human, destroy of ecological balance. Potato is an important plant among the plants in agriculture. For growing plentiful and qualitative potatoes adjoining agro technical measures it is important to fight pest, disease and weeds.

The growing of potato more than 200 years old in Azerbaijan including Ganja-Gazakh region pave the way to gather the model referring to different sort of flora and fauna in agrosenosis. In agrobiosenosis there are both important and useful species and harmful species. Some of them are developing popular, damaged the plants of potato. One of the important factors is to find out the species which is negative farming and to protect the harvest. It is impossible to fight correctly and in optimal time against harmful organisms without learning their species composition, biology, ecological characters, areal of spreading and other factors. Literature information's shows that there more than 100 harmful organisms in agrosenosis of potato (Migulin A.A. 1962). But the species composition and damaged limit of pests change according to geographical area.

Observation show that the changes of species Composition and damaged limit in agrosenosis of potato is depend an ecological factor. The microclimate which farming in the result with the influence of ecological factors is profitable or unprofitable for plants and pest and it is cause for serious loss of harvest. For accurating of species composition of pest areal of spreading and bio ecological characters are very important for preparing integration growing in different altitude from sea level (Bey-Bienko 1966).

Materials and methods. Nowadays fencricket spread in all regions our country. Fencricket (*Grylotalpa grylotalpa* L.) – a dangerous insect injures not only potato growing but also other agriculture vegetables such as tomato, eggplant, pepper, cucumber and etc. (Danilevskiy A.S. 1961 and Komorova O.S. 1949). We study biological, ecological and other features of fencricket according to methods of Bey-Bienko, Bryansev B.A. We used methods for excavations by Gilyarov M.S. and Fasulati K.K. It was work out integration measures on sowing of potato (Phasulati K.K. 1971 and Gilyarov M.S. 1949).

Results and discussion. Result of monoculture. To use from monoculture causes to reduce fertility and productivity of soil, the species composition of the pest fauna in agrosenosis. The shift plant system is important in the guarding of growing agriculture plants from pest, disease and weed. This system consists of different reciprocal connection agro technical measures. In shift sowing system should pay attention arising balance between shift plants and the farms. It needs to point in this position one of this balanced events in shift sowing system of species composition of the plants harmful organisms and it influenced of ancestor plants and their density of population. Sometimes the ancestor plant influence positive effect to the fertility of soil the regime of heat water, air, food of plant and sometimes it helps to develop species composition of pests and the press of population in sowing area.

Observation in Ganja-Gazakh region influence perennial grasses, grain crops etc. but it helps to develop soil pest and it influence to come down quality and quantity of potato. That is why in shift growing it must take into account adjoining biological characters and the entomofauna in variety of kind. Only in this condition it can be develop in farming's of farmer.

Bio ecological nature of fencricket. Fencricket (classis-Insect, ordo-Orthoptera, familia-Grylotalpidae, species-Grylotalpa grylotalpa L. and *Grylotalpa unispina* Sauss.) is one of the pests which damaged the plant of potato. If it doesn't

fight against the pest it damaged 75-80 percent of the harvest. There are two species of fencricket (*Gryllotalpa gryllotalpa*; *G.unispina* Sauss) in Azerbaijan. *Gryllotalpa gryllotalpa* has spread much. The length of the upper body ripe individual is 35-40 meters. The upper side of the body is black-dirty-brown. The lower side of the body is grey-yellow-bright. The body has been covered with small hair. Upper wings lay till half part of stomach, back wings lay the whole stomach. Front shin is digger feet. The second and third feet of shin have got 4 or 5 part of hair. The species of fencricket is different from each other. The head of the pest is prognatic. The mouth apparatus has stretched forward. Observations explain that the reason is that fencricket is predator characters [6; 7].

But observation shows that the pest always moved the direct of vertical. Function of organisms change according to the condition of ecological [8]. In our republic Ganja-Gazakh region the fencricket gives one generation. Depend on above the sea level nymph, protonymph and deytonymph passes the winter in the development period.

In the end of the stomach of the imago individual there is long serge covered with long hairs. There is not any organ putting egg in female individual. The eggs are oval, yellow-green. Their measure is 3-3.5 mm. The imago individual put their nest approximately 300-330 eggs. According to ecological condition the developing of larvaembryos continued 10-20 days. The larvas have been living in nests till a month (Fenological calendar 1). In areal there is some factors that restrict the spreading of pests. In Ganja-Gazakh region there is fencricket but it doesn't spread all the area. The observation carried out to learn this reason.

Investigation from land minerals show that till 500 meters above sea level, there are more nymphs in the growing potato field, till 700 meters above sea level there are more protonimphas, till 900 meters above sea level there are more deytonymphas.

Limitation Factors of fencricket. The reason is fencricket go to out from winter season later and go to winter season earlier. In winter season in metabolism the macroprocess go to the microprocess and it stops the process of the peel changer. That is why pest cannot last the stages of their age until the end.

Investigations show that above sea level the press of population of fen cricket reduces and we don't see pest after above 900 meters from sea level. For clearing of the factors restricting of the areal of the spreading of pest, investigation on learning

shows that areal can be restrict from different reason. The temperature of the environment temperature and tropic factors the process of aeration effect to this factor.

For accuraring to this factors, stasionar fields are choosen in Gizilgaya settlement (461 metres above sea level), in Ashigli village (700 meters above sea level) and in New Zod village (850 meters above sea level). Fencricket spreads widely in the potato fields of Gizilgaya and damages potato fields in the south part of Yeni Zod village. We find fencricket in the north part of Yeni Zod village in the middle of august. Fencricket is not observed in Hajikend settlement (1000 meters above sea level) (Reference book for climate of USSR 1969).

Then clearing the limited factors of fencricets spread areal we learned that profitable soil environment causes the fall of diapauza of fencricet. In other side low temperature makes the macro process go to the micro process in the metabolism of the matter of organism.

Fenological calendar 1

**Depend on the sea level the developing fenogram of fencricket
(Goy-gol region points – Gizilgaya settlement (a.s.l.- 461 m.). Ashigli village
(a.s.l.- 700 m.), Yeni Zod (a.s.l.- 850 m.))**

Name of the point	Months and decades																				
	April		May			June			July			August			Septem-ber			October			Winter period
	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	
Gizilgaya settlement (a.s.l. – 461 m.)	(-)	-	-	-																	
				+	+	+															
					.	.	.														
Ashigli village (a.s.l. – 700 m.)	(-)	(-)	-	-	-																
					+	+	+														
						.	.	.													
Yeni Zod (a.s.l. – 850 m.)	(-)	(-)	(-)	-	-	-															
						+	+	+													
						.	.	.													
									-	-	-	-	-	-	-	-	-	-	(-)	(-)	(-)

Transcription: (-) - wintering larva; - - larva; +++ - imago; - eggs

a.s.l. – altitude sea level; m. – meter

The formation of an unfavorable environment in the soil weakens the metabolic process of the pest. That is why pest's endocrine system doesn't active for fencricet fall diapauses. In this reason fencricet doesn't fall diapauses.

We know that wet weather causes to swell the small parts of the soil and to close the crack of the soil layer in autumn and winter season. This rubs the process of aeration on the soil. 850-900 m above sea level low temperature (-15; - 22 °C) cause to froze the up layer of soil in winter season. Larva's need air to breath. That's why pests can't house in the frozen layer of the soil. If we foresee that fencricet exist more than 30 million years we can say that this situation turned into genotypic peculiarity in the process of evolution.

In spring and summer season from 850-900 meters above sea level when the temperature falls down, it creates unadvantageous condition for living pest for putting eggs and so on. On the soil and this is connected with being the poykyloterm organism of the pest.

We saw from this research fencricet spreads and damage the potato fields in Goy-gol region, in the south slope (from 850 meters above sea level) of the Yeni Zod village. But we don't meet fencricet in the north slope of New Zod village in the middle of august months. This reason is pest is undergoing to sun lightless in the north slope-in spring and summer months and this makes unadvantageous condition in the North Slope for developing of the pest.

From the phonological calendar the fencricet find out of winter period, on the second ten-day period of April in Gizilgaya, on the first ten-day period of May in Ashigli, on the second ten-day period of May in Yeni Zod. We observe pests past winter period early above sea level. This shows that fencricet past's winter in the stage of younger age. In the stage of younger age larva have got less resistance to environment factors and this cause to kill the effect of their disadvantageous condition.

Conclusion. As a result we must notice that, in the condition of Ganja-Gazakh region the areal of the spreading of fencricet can be restricting from the following reason.

1. In Ganja-Gazakh region advantageous soil falls down diapause in winter season.
2. The weaking of metabolism increases the resistance against disadvantageous environment condition.

Table 1. The winter reserve of fencricet

Name of point	Inoculate with dugs	Above sea level	Number of pests	Developing stage					
				Deytonympha		Protonympha		Nympha	
				Number	%	Number	%	Number	%
Gizilgaya	16	461	11	2	18.2	4	36.3	5	45.5
Ashigli	16	700	5	1	20.0	3	60.0	1	20.0
Yeni Zod	16	850	3	2	66.6	1	33.3	-	-

3. When soil is moister it causes to close cracks and to rub the process of aeration.

4. In winter season higher moisture and lower temperature cause to kill pests, to rub aeration and to freeze soil above 850-900 meters sea level.

5. In autumn and summer seasons in higher region above 850-900 meters sea level lower temperature makes disadvantageous condition for developing stage of fencricet (to put egg and the developing of embrion).

6. Observation shows that the same factor influencing at the different diapason restricts both areal and the spreading of inter areal.

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Modern requirements to the learning process of the institution of higher medical education, optimization of the learning process

Abstract: The article highlights the issue of the functional purpose of scientific-methodical providing of the learning process of the institution of higher education, modern requirements to it, teaching complex of the discipline and its components.

Keywords: learning process, student, professional competence, scientific-methodical providing, higher education.

Modern society has come to understanding that prospects of the country and society itself depends on the quality of education. The quality of education determines who we form: the student as a fully developed personality or the one, who performs sets of assignments. Training a highly-qualified specialist should be internal motivation and purpose of the teachers.

Professional schooling of modern doctor justifies the need for significant changes in educational theory and practice of the educational process. Pithiness of programs, technology of teaching the training materials and pedagogical authority constantly requires the new attitudes. At the present stage of development the professional competence of a doctor the need for implementation of innovative technologies, modern scientific-methodical providing of the learning process in the

institution of higher education in the study process is sharply increasing [1, pp. 8-10, 2, pp. 4-14].

Content load of scientific-methodical providing of the learning process should reproduce the logic of formation the readiness of future doctors to the professional activity and organize the scientific-theoretical and conceptual integrity of professional training with other components of the educational process.

However, present requirements for scientific-methodical providing of the learning process in the institution of higher education are not without contradictions, and the basic of them are concentrated in the area of professional activity of teachers: on the one hand, the scientific-methodical providing of the learning process in the institution of higher education is intended to form students' competence that makes it possible to perform functional responsibilities with the most optimal way based on science-grounded decisions that provides maximum focus on individual learning paths by means of consideration of the specificity of the future professional activity and professionalization, and on the other - its construction due to requirements of the credit-module study that extremely standardize it [2, p. 5-13]; on the one hand, logical structuring of training materials by means of the consistent presentation of learning content, tasks for self-examination, questions for in-depth monitoring, that allows students, in teacher's opinion, to achieve the significant results both at the intermediate stages of mastering the discipline and at the terminal, on the other hand - the inability of the teacher to ensure the consistency and sequence of self-learning fully, because often it takes the format of inconstancy, volatility, disorder or even chaos [3, pp. 117-118, 4, pp. 10-28].

To resolve these contradictions it is advisable to clarify the semantic nature of scientific-methodical providing of the learning process by means of the establishment of its functions, types, current regulations to it, highlighting of which is the purpose of this article.

Scientific-methodical providing of the learning process is complex of documents, scientific, educational and methodological materials that: a) describe the contents; b) establish the structure; c) determine the outcome; d) regulate the course of the learning process.

The main components of scientific-methodical providing of the learning process are determined by the principles on organization of the educational process in the institutions of higher education. They are: state educational standards;

curriculums; training programs for all standard and optional subjects; all types of practice programs; textbooks and manuals; instructional and teaching materials for practice sessions; semester individual tasks for self-dependent students' work for educational disciplines; materials of current and terminal control (control tasks for practice sessions, tests for checking the level of mastering the academic material); methodical materials for students' self-study of the professional literature, writing of the abstracts.

However, the implementation of the official duties with the most optimal way on the basis of science-grounded decisions provides maximum focus on individualization of learning by means of consideration the specifics of future professional activity [2, p. 5-13]. Therefore, this list may be amended, extended by decision of the department, faculty of the institution of higher education or at the initiative of the teacher: ensuring of the educational process with the visual materials; preparing the summaries of lectures, practice sessions, teaching materials for teachers and guidance for students; developing of the guidelines for self-dependent students' work, according to the requirements of educational process on credit-module system.

We consider that unsystematic organizing of self-dependent students' work can be adjusted by expanding the list of the main components of scientific-methodical providing of the learning process. First of all, it is advisable to include the videos to each topic of the practice session, self-dependent students' work, discussions, conferences, meetings of «round table», where should be recorded discussing of the educational material of at least the entire module, but better - a few. It is appropriate to make the list of videos and performances of renowned experts (both home and foreign) of the problems that are predicted in the curriculum [5, p. 4-14].

Educational-methodical complex is a complex of specially designed materials that are integrated formation and provides mastering of a particular discipline by students. The components of educational-methodical complex include materials for classroom work on educational discipline: plan-notes of lectures, plans of practice sessions, multimedia support of sessions; materials for self-dependent work of students: textbooks and manuals, guidelines for preparation for practical lessons and materials for self-control of each module, individual tasks, etc.; materials for control of

educational achievements of students: control questions, control tasks, tests for determining of input and output levels of knowledge, current and terminal control etc.

The above components can be supplemented by others, availability of which is initiated directly by teacher, department or university.

Responsibility for the scientific-methodical providing of educational discipline is assigned on the teacher who is entrusted to teach it.

The materials of educational-methodical complex, excepting the tests, current and terminal control may be available for students to use. As for the tests of current and terminal control our thought is this: for self-examination students need to be offered dissimilar tests to prevent addiction to familiar format. Thus, the tests may include only one correct answer, and case exercises - from one to several correct answers.

The question of compliance of the regulatory requirements to provide students with educational literature, methodological guidelines that are required for the discipline stays difficult.

Each student must have access for using the: textbooks, educational-methodical manuals from the list of basic literature from educational work program of the discipline; plans of lectures and practice sessions; methodical guidance on preparing for practice sessions; guidelines for implementation of all kinds of proceedings that are provided in the curriculum: checklist of control tasks, questions etc.

An important aspect of the methodology training of teacher is the formed ability to methodical providing of classes, which is defined as a set of teaching materials used in preparing for lectures and practice sessions. Preparing of such materials is assigned to that teacher who conducts the lectures and practice sessions.

The lecturer necessarily prepares the outline of the lecture. It is important to understand that this outline is necessary not so much for lecturer as for a student, who could be late, go out or be distracted for the objective reasons. Lecture presentation of educational material is necessary to complement with multimedia presentations, photographs that greatly facilitates the perception of the material by the students.

A complete set of methodical providing of lecture should include: a compendium of current lecture; plan of lectures on the discipline; plan of practical lessons; a multimedia presentation of lecture.

The mandatory component of methodical providing of practical lesson are materials that should clarify: theme of a lesson, its topicality, educational goals, what the student should know and be able to do, content of the theme, practical exercises that are carried out during the lesson, control questions to check the amount and level of learned educational material, tests, primary and secondary literature.

Methodical providing of students' self-dependent work is a set of educational and training materials, the purpose of which is to provide the necessary information for a complete mastery of the discipline by means of its processing, critical analysis and understanding in the free time.

As the self-study is the part of the total scope of the educational discipline, its mastery beyond auditorium classes creates a quite significant load on the student. Self-dependent work should respond for the content and scope to the modular structure of the discipline; forms, types of self-dependent students' study of educational materials should be diversified: it can be essays, reports, etc.; it is necessary to provide the possibility of self-examination of independently researched questions; for the in-depth self-examination it is required to bring checklist questions to the guidance for self-dependent work, short answers to which should be highlighted in the text. Self-dependent work of students, which is provided in the theme of the lesson along with the audience work, is estimated during the current control of the theme on the proper lesson and assimilation of the topics that are considered only for self-dependent work are checked during the summary module control.

Further implementation of issues on scientific-methodical providing of the educational process in the institutions of higher education are advisable to be expanded towards the theoretical justification of the procedure of monitoring the quality of learning and quality of education that will give the opportunity to students to track the acquired knowledge and to achieve the desired level.

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Analyzing Professional Competences of Future Teachers

Abstract: The article deals with defining professional competences for future teachers training. Along with tracing back the origins and various interpretations of the concept, competences of science and English teachers are analyzed.

Keywords: competence, competency, professional competences, components of professional competences, science teachers, English teachers.

The current changes in Ukraine in general and the educational system in particular are stimulating great interest in training highly qualified specialists. The Bologna Declaration, which is considered the main benchmark of European education system, focuses on building professional competences (the approach of "I can do") of university graduates. Therefore the competency-based approach is widely used nowadays.

When dealing with professional competence, the requirement is twice as important for teachers-to-be who will be lately held responsible for educating future generations. The ability to predict learning results and model educational processes is crucial nowadays. Thus, it is of the highest priority to the Ukrainian society to train an open-minded, creative and highly skilled teacher, a competent professional.

The term "competence" had a substantial impact on education worldwide. In 1959 it was first introduced by Robert W. White. For about 60 years hot debates have been on concerning differences between terms "competence" and "competency", though both of them are interpreted as the ability to do something well by Longman Dictionary of Contemporary English [1]. Unlike dictionaries, which stress interchangeable meanings of the terms, researchers use the former to describe a person's general ability, while the latter is more about the ability of performing a certain task.

O. Pometun came to the conclusion that education can be characterized by competence of graduates. It has several levels, where the lowest threshold is

considered necessary and sufficient for minimal success in attaining expected results [2, p. 17].

Later the term genealogy got more complicated as more notions were introduced. Among them professional competence is one of the most essential. It has been widely studied since the 1990s by researchers worldwide, including V. Adolf, V. Barkasi, D. Freeman, M. Fullan, A. Khutorsky, T. Rudnev, Iu. Shapran, G. Stein and others.

The Ukrainian Pedagogical Dictionary describes professional competence of teachers as basic pedagogical knowledge, abilities and skills for pedagogical activities and communication, with a key role of a teacher [3, p. 62]. In general, it is a range of both professional and personal skills necessary for efficient task performing.

Teaching competence is mostly affected by personal initiatives and the environment. The former centers on self-development. The latter is about outer stimulation, e.g. financial and prestige incentives, aimed at experience sharing, competition participation, etc.

Prominent foreign and Ukrainian researchers (B. Ananiev, T. Guskey, J. Hamilton, T. Shamova etc.) have created a three-aspect system of pedagogical competence: management (planning, organizing, regulating educational process), psychological (dealing with and influencing students) and pedagogical (applying various teaching forms and methods to receive set goals). Other pedagogical works point out a professionalism component of methodological, pedagogical and psychological training, a work component including an atmosphere and relations at work, a learning process, etc., and creativity of combining oratory and acting skills.

It is V. Kraievsky and A. Khutorsky who point out cognitive (general pedagogical and certain subject mastery), operation-technological (certain subject techniques and technologies) and personal components (teacher personality) [4]. Meanwhile, L. Elagina pays particular attention to motivation (enthusiasm for self-improvement), actions (self-awareness/esteem, goal-setting, etc.), emotions (emotional attachment to professional activities), as well as to cognitive [5, p. 30].

To sum up, professional competence is considered a range of knowledge and skills, pedagogical qualities presenting the mix of theoretical and practical readiness. As for its structure, cognitive, operational-technological, personal, and motivation components are chosen.

Generally, the components tend to vary depending on the specialization of future teachers. Studying professional competence of future science teachers, motivation and value orientations, theoretical base, technological skills, professional and reflection qualities are fundamental. As a result, the structure of professional competence includes:

- motivation and reflection (positive attitudes with high satisfactory expectations to the profession of teacher, internal and external motives, close connection with reflection practices which stimulate further professional development);
- cognitive and conative components combine professional knowledge of subject, methodology, methods and educational skills of design (e.g. setting educational goals and strategies), diagnosis (evaluation), technology (optimal training techniques), organizing classes and researches, etc.;
- social and personal components are about developing positive psychological attitudes to educational process and students, integrity, independence, social adaptability, responsibility, reliability, respect and applying pedagogical rules and models of which a teacher must be aware.

It is particularly important for future science teachers to generate a sense of professional "belonging": mastering laws of origin, nature and development of the living matter, taking care of own health and that of students, applying techniques for health preservation, environmental and ecological education, etc.

Interestingly, the main components of professional competence of future science teachers are quite similar to those of language teachers, though there are some differences. For the former, they are motivational-reflexive, cognitive-conative and socio-personal. For the latter, language proficiency is at the heart of success. Generally, the main difference is about teaching to communicate in English. Plus, speaking, writing, reading and listening skills are key.

In the English literature, the approach of four questions is used: the "why" (motivation and incentives), the "what" (knowledge competences, performance competences, and consequence competences), the "how" and the "who" (competences are to be assessable with assessment standards). Arends points out four attributes of a good teacher: personal qualities, knowledge base, an arsenal of teaching strategies, and reflection and problem solving practices [6].

Mirjam Anugerahwati from State University of Malan carried out a research in Indonesia centered on studying professional competence of English teachers. The chosen participants were exemplary, often having leading positions. According to the study, most of them selected personal competence as the most significant one, e.g. patience, understanding, good relations, helpfulness, etc. Number two is pedagogical competence – an ability to juggle with various teaching methods with the main purpose of making lessons interesting and challenging. Another competence is trustful partnership among colleagues. The last but not least is discipline aka professional competence which is about being a model of using English properly for students with enough exposure to the language [6].

Often, it is European Language Portfolio that is recommended to adopt as an influential model [7]. It is used worldwide as now one of four people is learning English.

Analyzing professional competence of English teachers in Uzbekistan, Barno Toshboeva draws out the following components: a friendly environment with close peer cooperation and guidance, educational researches and innovative practices, development of skills (both self-improvement on the basis of own teaching practices analysis and participation in seminars, workshops etc.) [8, p. 2].

Yevheniya Protsko took interest in studying professional competences of English teachers in Belgium. The scholar highlights the following components of the professional competence structure: communicative competence (cognitive, linguistic, phonetic, semantic and manual skills), sociolinguistic (the aspect of linguistic markers) and pragmatic competences (discourse, functions, design) [9, p. 80].

In training teachers of foreign languages communicative and interpersonal communication plays an important role. As for professional competences, they are linguistic, thematic, socio-cultural, educational and cognitive.

Choosing proper training methods and techniques is of utmost importance. It is believed they should blend several principles: goal-setting (for students to know an expected result and understand competences to master), problem-solving (settling contradictions) and the binary system (teacher-student relations).

After comparing the competences of science and English teachers, the authors agree on choosing professional (subject), personal, social and pedagogical ones as the most prominent.

In conclusion, for training highly qualified teachers it is a must to establish an appraisal framework, to maintain on-site training, build a partnership between universities and local schools, as well as to ensure training programs are based on teachers' competences.

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Kamyanets in Podillia: events of cultural and musical life of the first half of the 20th century

Abstract: The article deals with the study of cultural and musical life of Kamyanets of the first half of the 20th century, which became a mighty basis for developing a powerful cultural and musical center. It mentions prominent cultural and musical figures of the region, teachers, investigators of the musical activities, communities of different directions.

Keywords: Kamyanets, music, cultural-musical life, country-studying, creative work.

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Кам'янець на Поділлі: події культурного і музичного життя в першій половині ХХ ст.

Анотація: Стаття розкриває події культурного і музичного життя Кам'янця на Поділлі першої половини ХХ ст., яке стало ґрунтовною базою для постання розгалуженого культурного і музичного центру в регіоні. Представлені відомі діячі культури і музичного мистецтва осередку, педагоги, дослідники музичної діяльності, товариств різних напрямків.

Ключові слова: Кам'янець, музика, культурно-музичне життя, регіоназнавство, творча діяльність.

Аналіз розвитку культури регіону продемонстрував, що поза увагою залишається значний корпус матеріалів, що торкається творчості музикантів і

композиторів. Тому, мета статті – дослідити розвиток культурно-музичного життя Кам'янця-Подільського першої половини ХХ сторіччя в контексті діяльності товариства «Просвіта» і національного хору в Кам'янці.

Насиченим і бурхливим було культурне життя Кам'янця на початку ХХ ст. У цей час тут працюють письменники – М. Драй-Хмара і М. Годованець; корифеї українського театру М. Садовський, М. Заньковецька; М. Литвиненко-Вольгемут; молоді композитори М. Леонтович, К. Стеценко, О. Кошиць та ін. У 1900-х роках в Україні поширюється діяльність освітніх товариств під назвою «Просвіта», що видавали книжки українською мовою, читали лекції, відкривали бібліотеки, організовували хори і оркестри. Датою реєстрації «Просвіти» в Кам'янці-Подільському вважається 19 квітня 1906 року, коли просвітяни затвердили свій статут [17, с. 128]. Її головою став лікар, випускник Київського університету Кость Солуха.

Членами цього товариства стали широкі кола кам'янецької інтелігенції, ряди якого нараховували 120 чоловік. Як зазначає В. Лозовий, «Просвіта» мала «великий вплив на українську свідому інтелігенцію» [10, с. 17]. Просвітяни влаштовували читання рефератів з актуальних проблем українства, організовували театральні вистави, концерти, літні гуляння на Новому бульварі. Проходили вони цікаво: часто виступав хор, лірник або бандурист, які співали українських пісень. Тут же грав військовий оркестр, увечері публіку розважали феєрверками [10, с. 12].

В листопадовому номері газети «Рада», яка видавалася у Києві, за 1908 рік розповідається про літературно-вокальну вечірку кам'янецької «Просвіти», де був прочитаний реферат Сергія Єфремова «Шевченко й українське письменництво», а потім хор проспівав українські пісні [14].

В листопадовому номері цієї ж газети за 1909 рік згадується вечірка, в програмі якої були читання Олексою Приходьком реферату «Непевні елементи в українстві», декламації, музичні номери у виконанні інструментальних ансамблів та хору [15].

В жовтневому номері за 1912 рік цього ж друкованого видання відзначається, що 6 жовтня 1912 року були проведені вечорниці, де «в першому відділі читалися спогади М. Садовського про російсько-турецьку війну 1877-1878 рр., а у другому, як завжди, були – номери народної музики й української класики» [16].

Кам'янецька «Просвіта» підтримувала тісні зв'язки з різними національними громадами міста. Лише у червні 1909 року товариство влаштувало три масових гуляння, три літературно-масових вечірки і один великий концерт. Майже повний зал театру зібрав виступ відомого бандуриста І. Кучеренка та місцевих артистів. Цей солідний концерт справив на публіку дуже гарне враження [10, с. 14].

Непогано працювала Кам'янецька просвітянська бібліотека. В ній у 1911 році нараховувалося 1130 примірників книжок, а в 1913 році 1460, виписувалось 18 українських і російських газет і журналів. 183 постійні читачі користувалися її фондами. Зі звіту про діяльність товариства у 1913 році дізнаємося, що основною формою його роботи були літературно-музичні вечори. Їх програми склалися з рефератів, сольних і хорових співів, читання віршів, маленьких вистав. Часто на вечірках виступав чоловічий хор.

17 травня 1914 року в результаті жандармської акції діяльність «Просвіти» було припинено [11, с. 63]. І лише в березні 1917 року, після Лютневої революції, вона відродилась в Кам'янці-Подільському [12, с. 31].

Величезне значення для Кам'янця мало ініціювання «Просвітою» відкриття у місті Українського Університету. Духовними батьками цього першого вищого навчального закладу на Поділлі можна вважати незмінного голову товариства – К. Солуху та її найактивніших членів О. Шультмінського і О. Пащенко [13, с. 335]. Його урочисте відкриття було заплановане на 22 жовтня 1918 року. За день до цього товариство влаштувало для школярів міста безплатний концерт, який відбувся у Шевченківському народному домі [9, с. 78]. Після завершення офіційної частини розпочався виступ Українського національного хору Кам'янця під орудою диригента П. Бутовського. У першому відділі програми хор виконав народні пісні, а у другому відділі концерту під спів хору було виконано поему В. Пачовського «Гетьман Дорошенко» [4, с. 94-95].

Зі спогадів професора Л.Т. Білецького дізнаємось, що «спеціально на свято приїхала і українська капелля Кошиця, щоби взяти безпосередню участь у святі своїми співами» [1, с. 139]. «На початку свята і в перервах видатний хор Кошиця співав гімн і патріотичні українські пісні; хор Кам'янецький, що стояв окремо, допомагав і своїми співами вже своїх пісень», - згадує професор [1, с. 143-144]. Після промови ректора І. Огієнка хор під керівництвом О. Кошиця

заспівав твір К. Стеценка «Живи, Україно». Потім обидва хори урочисто виконали гімн, а за ним «Гаудеамус».

У 1917-1918 рр. після революційних подій настає новий етап музичного життя Подільського краю. Президент України М. Грушевський, Центральна Рада та уряд на чолі з В. Винниченком, одним із факторів формування свідомості громадян оголосили розвиток освіти і культури.

Музичним відділом при Міністерстві народної освіти був розроблений план заснування національних хорів по всій Україні. Такий хор в Кам'янці-Подільському був створений 30 червня 1918 року.

«Відродження, утворення і поширення музичних багатств українського народу, а зокрема його пісні» [5, с. 209] – це мета національних хорів, а головне завдання – «студіювання української народної пісні і творів українських композиторів, а також пісні і композиції інших народів в українському перекладі» [5, с. 115]. З такими гаслами став до життя Кам'янець-Подільський український національний хор.

В будинку Народного дому 6 жовтня 1918 року відбувся перший концерт і урочисте відкриття хору. На початку святкувань був виконаний гімн «Ще не вмерла України». У програмі прозвучали твори українських композиторів: К. Стеценка, М. Лисенка, А. Вахнянина, В. Завадського, О. Кошиця і Д. Січинського.

У газетах «Подольський край» і «Подольская мысль» за жовтень 1918 року зустрічається така інформація: «...новий твір талановитого українського композитора К. Стеценка на слова Черкасенка «Вкраїно мати» хор виконав з великим запалом і з музичного боку зовсім бездоганно.... В другому відділі була проспівана поема В. Пачовського «Гетьман Дорошенко» на музику Яна Галля з мелодекламацією п. Дальського. Спів останніх чотирьох пісень III відділу «Ой, у саду вишня», «Гарбуз білий качається», «Живи, Україно», «Не пора» справив на публіку приємне враження...» [8, с. 4]. Журналісти також відзначили уміння диригента П. Бутовського, який «...пройшов добру школу хорового співу, бо закінчив Київську духовну семінарію, яка завше славилась своїм хоровим співом на всю Україну, і котру дуже високо оцінював М.В. Лисенко» [8, с. 4]. Адміністрацією колективу була організована Хорова рада, яка вела чіткі хронологічні записи, щодо діяльності національного хору.

Другим концертом хорового колективу були колядки і щедрівки, які виконувались в народному домі 8 січня 1919 року. Із вступним словом про колядки і щедрівки виступив професор Кам'янецького університету, український поет Михайло Драй-Хмара [6, арк. 2]. А 12 січня 1919 року проходив концерт-бал за участю національного хору і скрипаля-віртуоза Є. Москвичова з програмою колядок і щедрівок та танців до 6-ї год. ранку.

Великою подією міста було проведення 10-11 березня 1919 року урочистостей в пам'ять Т.Г. Шевченка. На Соборній площі, ранком 11 березня відбулась урочиста панахида за участі українського духовенства. Літургію співав Національний Хор українською мовою. А в Народному Домі 11 березня 1919 року спільними силами українських організацій Кам'янця і артистів театру М. Садовського був улаштований урочистий концерт-вистава пам'яті Т. Шевченка.

Місцева газета «Життя Поділля» № 75 за 19 березня 1919 р. надрукувала відгук про цю подію: «...гарне вражіння зробив своїми співами Національний Хор під орудою відомого диригента Олекси Приходька. Не дивлячись на те, що хор раніше співав під диригенством Бутовського й Москвичова, хор виконав дуже гарно ці пісні під орудою Олекси Приходька. Хору акомпанував наш славетний композитор Кирило Стеценко. ...Взагалі цей концерт залишив у кожного українця самі приємні спомини» [6, с. 21].

Вшанування пам'яті Т.Г. Шевченка в 1920 році відбувалось менш урочисто, тому що політична ситуація в місті, час від часу, загострювалась. Національний гімн та «Заповіт» виконувалися зведеним хором, в якому брали участь: хор Державного Театру, хор юнаків Державного Університету та Український Національний хор. Досить цікавим виявилось згадування про те, що «в антрактах грає і акомпанує співам» оркестр державного театру під керівництвом Є. Москвичова [7, с. 26].

У поданому звіті про творчу діяльність з 30 червня 1919 по 29 червня 1920 рр. описується, що за минулий рік хор виступав 36 разів, мав 3 власних концерти, 20 разів брав участь в урочистих і благодійних концертах, керуючись вимогами часу, щодо українізації церковного співу, збагатив своїм співом 3 літургії, а, вшановуючи пам'ять померлих членів хору і видатних українських діячів, хор проспівав 10 панахид [7, с. 21]. Дві з них були присвячені Юрку Приходьку і Степану Грищенку.

Ще однією видатною подією в житті національного хору був концерт, присвячений пам'яті М.В. Лисенка. У газеті «Наш шлях» за 25 грудня 1919 р. є стаття про цей концерт, організований Українським клубом. «Концерт почався переднім словом М.О. Грінченка, котрий в стислих строках, але дуже змістовно і оригінально розповів аудиторії біографію композитора і зробив оцінку його музичних творів, порівнявши і відрізнивши Лисенка від композиторів сходу і заходу. Український національний хор з успіхом виконав пісню «Туман хвилями лягає» з опери «Утоплена». «Весь концерт пройшов під супроводом М.О. Грінченка, котрий правильним розумінням композиції огорнув весь концерт настроєм Лисенківської музики і тим лишив в аудиторії вражіння чогось своєрідно-закінченого. Не дивлячись на цікавий концерт, публіки було небагато, бо не було танців до 5 год. ранку» [2, с. 48].

Хор займався справами нотного видавництва, тому що активісти Національного Хору паралельно, з вирішенням проблеми розмножування нотного матеріалу українських композиторів, прагнули популяризувати і художньо-цінні хорові твори зарубіжних митців: «...хор має налагоджений апарат для перекладу московського тексту... і може постачати ноти неукраїнських авторів, але з українським текстом» [5, с. 88].

Отже, діяльність українського національного хору в 1918-1920 роках була доволі різноманітною і плідною завдяки роботі видатних диригентів-ентузіастів В. Бесядовського, Д. Білобержицького, П. Бутовського, О. Ільча, Є. Москвичова, О. Приходька, М. Тележинського, К. Стеценка.

В архівах міститься інформація про існування в місті інших хорових колективів, таких як хор Народного театру ім. Т. Шевченка і хор юнаків Державного Українського Університету, які популяризували українську народну пісню та музичну творчість українських композиторів.

Основним джерелом інформації про життя хорового колективу у роки історичних перемін стали місцеві газети, які докладно і фахово рецензували виступи колективу, що дає можливість прослідкувати історію діяльності Українського Національного хору. Це свідчить також про те, що хор становив важливий духовний осередок Кам'янця-Подільського, разом з іншими освітніми та суспільними установами створював неповторну культурно-просвітницьку атмосферу губернського міста.

Влітку 1920 року, за ініціативи прогресивних мистецьких організацій Кам'янця-Подільського, в тому числі і Українського Національного Хору, в стародавньому місті була відкрита Народна Консерваторія [2, арк. 128].

Класи вивчення музичної грамоти та музичної літератури провадились під керівництвом доктора музики В.І. Петра та голови консерваторії М.О. Грінченка. Сольному співу навчала оперна співачка М.І. Литвиненко-Вольгемут. Справою індивідуального інструментального навчання керував випускник Чесько-Слов'янської Академії музики і співів Зденек Рудольфович Комінек [3, арк. 2-5].

Отже, на початку ХХ ст. Кам'янець-Подільський набуває статусу загальноісторичного центру України завдяки самовідданій праці видатних діячів (І. Огієнка, М. Грінченка та ін.). Активізується процес національної самоідентифікації в різних сферах: освітній (засновується Український Державний Університет), мистецькій, музичній (популяризуються музичні твори українських композиторів). Музична діяльність стає невід'ємною складовою культури регіону, впливаючи, водночас, на рівень і розвиток мистецького життя мешканців Кам'янеччини.

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Nikolay Gogol's pedagogical legacy

Abstract: The article is devoted to coverage of educational heritage of world literature classic known as Mikolay Gogol. We consider historical and pedagogical research projects of the writer and his books on the history of Ukraine and world history that Gogol started in the last year of high school science Nezhhine. Expands the availability of didactic principles in teaching as one of the basic principles of the system, pedagogical views of the author of "Dead Souls" (Mertvie dushi) and "Inspector" of organization of educational process, methods of teaching history and geography of teaching skills.

Analyzes the educational activities of the writer as an associate professor of general history of St. Petersburg University.

Keywords: pedagogical legacy, school, pedagogical skills, education, primary school, educational literature.

Formulation of the problem. M. Gogol (1809-1852) entered the history of world literature primarily as the author of the comedy "The Inspector", the poem "Dead Souls" (Mertvi dushi) and other literary masterpieces. However, it has been characterized by other hobbies and preferences. In particular, Gogol still remains little known as a historian, philosopher, educator and teacher practices, despite the fact that his article on the historical and educational topics were published and included almost all editions of works of the writer.

Analysis of recent research and publications in which a solution of this problem. For over half a century artistic heritage Gogol is the subject of attention both in Ukrainian and in foreign literary. There were areas of literature within which research carried out multi-vector well known as Gogol's time starting from 1990. In the modern period of development not only published in full literary texts, diaries, correspondence Gogol (The Complete Works of Russian and Ukrainian scientific research "Gogol's studio", devoted to the study of works of art of the artist), but also established revised approach to writer, the search for new methods of

comprehension of its heritage. According to P. Mihed "the modern Gogol Cultural kind of laboratory where the testing of different scientific methods. Gogol and his way of life were a kind of cultural texts that provide food for different profiles humanities" [5, p. 203].

However, as correctly noted in the introduction to the encyclopedia "Gogol" (2007) P. Socolov, "compared with other classics Nikolai Gogol deprived of the attention of other branches of science" [6, p. 18]. In particular is still not special papers in pedagogy which would be analyzed pedagogical heritage of the writer. Our publication "Gogol's teaching views" [4], in fact, just started to develop this problem.

The relevance of the article caused an **objective** need for careful study of educational Gogol's heritage and the lack of publications devoted to understanding the subject. **The purpose** of the study is to analyze the educational heritage of world literature written by the classic known as Nikolay Gogol. Also he was the author of anthropological theory oriented structure outline for the history books.

The main material research. On the eve of the centennial of the birth of Nikolay Gogol began to appear the first publication not only of art, but also the scientific works of world famous writer. M. Kamanin studio "Scientific and literary works of Gogol Little History" drew attention to the fact that interest in professional employment story by M. Gogol in 1902. Instilled his time professors and teachers of Nizhinska high school by prince Bezborodko who was a senior official and a distant relative, where 12-year-old pupil Gogol was enrolled May 1, 1821 by the recommendation of D. Troshchinsky [3, p. 12].

This higher level institution was famous by its traditions and future graduates (Gogol, Hrebinka, Prokopovich and others). Teachers gave students a thorough and comprehensive historical and philological knowledge, develop their own example and teaching skills students a desire for further improvement. Nizhinska high school by prince Bezborodko was founded the 19-th April 19 1820. It was different schools from provincial "as the highest level of science that are taught there, and especially, it granted rights and benefits" [7, p. 74].

During training in the gymnasium in Nizhin Gogol had a great opportunity to use funds the best libraries, including the private library by D. Troshchinskiy who was rare with the first local historians, linguists, anthropologists A. Bodianskiy, N. Yevetskiy, A. Metlinskiy, P. Lukashevich and others.

Even two years before graduation a schoolboy Mikola Gogol started to collect historical and ethnographic materials in 1826. He believed Ukrainian songs, myths, legends genuine, lively, colorful history, through which reveals the life of the people. Gogol was very fascinated by the idea and write their own Ukrainian world history based on research and analysis of old folk songs, legends, myths as the main historical sources. Reflections on projects he shares in private letters to his friends M. Maksimovich, M. Pogodin, I. Sreznevskiy, S. Shevyrev. In particular in correspondence to M. Maksimovich he wrote about captures this work, a lot of new, fresh thoughts and conclusions come to him.

Gogol wanted to publish some interesting books and textbooks about Ukraine and world history. In particular, he hatched the idea of the several books known as "History of Little Russia" (was published only "Excerpt from" History of Little Russia" ("thoughts of Mazepa") examines records, historical and folkloric works on Ukraine [1, p. 97], enjoys Ukrainian folk song (Article "On Little Russian songs"). Interest of Ukrainian scientific and creative plans Gogol clearly manifested in his correspondence the mid 30's by Pushkin (letter of 23 December 1833) Sreznevskiy (letter dated the 6-th of March, 1834), apart from M. Maksimovich (letter dated the 7-th of January 1834, the 12-th of March, 1834, [the 20-th of December] 1833) when Gogol broke desire to return to Ukraine, to occupy the post of professor of general history at the newly opened University of Kiev (unfortunately not intend to make lucky).

Seeking their place in the metropolitan whirl of St. Petersburg and just livelihood, Gogol tries hand at journalism, the bureaucratic service in teaching, even trying to become an actor. In March 1831 Gogol began service as a junior history teacher Patriotic Institute in St. Petersburg. Within a month, he was appointed senior history teacher of the same institute and confirmed in the rank of titular counselor. Subsequently, 1834 year, he was appointed associate professor of general history of St. Petersburg University.

To the Gogol's pen belongs to a number of scientific papers on historical subjects in which many references, comparisons, comparisons with antiquity and direct appeals to it, as well as historical and educational articles in which the author examines the educational process "Middle Ages", "About teaching the world history", "Look at Malorossi's Drawing", "Thoughts of geography", "Life", "the teaching book of Russian literature for yang people", "Education" and others.

The article tells us about "On the teaching of universal history" the author gives a deep, philosophically meaningful definition of "world history" "Its subject is great ... it must gather into one all the peoples of the world, separated by time, event, mountains, seas, and unite them into one harmonious whole; From them to compose one majestic full poem" [2, p. 183].

In the 30 years of the nineteenth century Gogol was available and simply laid out his thoughts on how to write the textbook on world history for children and adults. He developed his own outline for the course which consisted of several parts, the first was the public and should give a complete picture of the world, these stories of individual countries and continents, but in the final part the world development over the centuries. The author emphasized that this course "must be necessarily show what marked the beginning, middle and end of each century, then the spirit and distinctive features of it. In order to better define each century and avoid the monotony of numbers, I will call it the name of that people or person who has become higher than the other in him and has acted more vigorously in the field of peace" [6, p. 395].

It was a project in modern terminology anthropologically oriented history for which in the spotlight a man on a background of the historical world view. Unfortunately this brilliant scientific idea and failed to implement or Gogol. However, modern German historian Bodo Harenberh was the historic "Chronicle of mankind". This was a significant event in the world of science and culture and visual confirmation of the depth of design Gogol.

In addition to scientific studies on history, eminent writer engaged in teaching, concerned about the problems of the educational process. Gogol teacher has gone from a home teacher to associate professor. He had plans and desire to work in the University of Kiev, live in Kiev. It was a city with a mild southern climate beneficial to his health. Nikolay wrote to M. Maksymovich to request to order the word guardian of the Kiev school district E. Brarkein the 20-th of July 1834. However, the Minister of Education Uvarov decided to leave Gogol in St. Petersburg. The 24-th of July, 1834 he was appointed to the position of Associate Professor in the Department of History of the Imperial St. Petersburg University. Certain Gogol wrote based on lectures delivered to students referred to the university "About the Middle ages" and "About the teaching the general history". But she disappointed his student audience "impersonality and indifference". Dreams of moving to Kyiv did not leave Gogol. In a

letter to Maksimovich find the following lines: "In Kiev, in the ancient, beautiful Kiev! He's ours, he's not theirs, right? There or around him, the affairs of our antiquities were being made. Yes, it will be nice if we take with you Kiev chairs; Much can be done for good" [2, p. 285].

M. Gogol's book was packed with science-based plans and the secession of special courses was written in written form. So, in the leaf to M. Pogodina rock he noted that left a great work, the history about general geography "Earth and humanity". To keep the fragment of the book for children from geography. So now appeal the question why philologist payed so much attention to the geography? The answer is simple. M. Gogol thought that the history and geography are integral and must be merged into a coherent universal science of human society. This approach is very much in tune with modern views on the integrated study subjects.

Gogol had on the educational process and teaching geography to children and to provide textbooks, geographical maps students. It offers relevant today. In the educational process writer considered it necessary to establish and develop interdisciplinary communication. Much attention he paid to the person of the teacher, his professional qualities, pedagogical skills.

Gogol wrote "The teacher's syllable should be captivating, picturesque ... It acts strongly on the imagination. It will not soon be knocked out of the head. His syllable should be more suited to the traveler's style. Strict analytical systematics can not be kept in the head of the boy. A child only then holds the system when he does not see it with his eyes, when she is artfully hidden from him" [2, p. 267].

According to Gogol pedagogical skills teacher is the alpha and omega of the whole educational process. "The laziness and incomprehension of the pupil are the guilt of the teacher and the essence is only the signs of his own carelessness. He could not. He did not want to get the attention of his young listeners. He made them take their pills with disgust. It is impossible to imagine perfect incapacity in the child" [2, p. 269].

Almost all historical and educational articles Gogol stresses the importance of individual history teacher, his talent and professionalism. In his opinion "The professor's story should be made at times exalted, must pour and excite high thoughts, but at the same time should be simple and understandable for everyone. Truly high is clothed with majestic simplicity: where is greatness, there is simplicity..." [2, p. 270]. As you can see, the task to convey information to the listener simple,

accessible and understandable Gogol considered a major. Today didactic principle of access to learning called one of the first principles of the system.

Gogol drew attention to the fact that "Every lecture of a professor must necessarily have integrity and seem finished, so that in the minds of the listeners it would appear to be a harmonious poem. So that they see in the beginning what it should contain in itself and what it concludes through this they will always keep their purpose and integrity in their story" [2, p. 267].

The same requirements and current teachers teaching tips should be considered when reading lecture to a student audience. Gogol's interest and deep philosophical questions about the meaning of life that concern humanity in our time. This is evidenced by the article "Life", which was published in the book "Arabesque". By its dated 1831 year. However, according to M. Sokolov emerged only intention to the Gogol's article and work on it took place in August and October 1834.

In this work served poetic panorama of human history in the birth of Jesus Christ. By seeking answers to eternal questions: What is life in general and the lives of individuals, peoples, nations and civilizations? What is life? How to understand, appreciate, enjoy its beauty and the joy that it brings? After all, did not submit answers to the questions raised, he thinks he and offers them to think of the reader. The current reading and analysis of all written Gogol on the development of world-historical process and its vision of the major historical issues clearly indicates that it was a very talented, original and deeply thoughtful historian and theorist, historian and practitioner, historian and teacher.

Conclusions. The current reading and analyzing of Gogol's works organization of educational process, methods of teaching history and geography of pedagogical skill of the teacher indicates that he was a talented and original historian, theorist, historian practitioner, historian, teacher. Educational Legacy writer topical at the present stage of educational reform in Ukraine and worth it to enter new bright page in domestic textbooks on pedagogy, history, geography, culture.

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Taras Shevchenko's pedagogical heritage at the reception of modern scientists

Abstract: The article includes analysis of new publications devoted to understanding the educational legacy of the famous Ukrainian poet Taras Shevchenko who was absolutely considerable interest to the modern educational system of Ukraine. We consider about key problems described in monographs by S. Chavdarova, articles by P. Kraliuk, V. Yaremenko and other researchers on the teaching legacy author of "Primer of the East Russia" created modern Ukrainian scientists.

As a result of the research we made conclusions about Shevchenko's foresight in promoting the education for Ukrainians who have urgent need to move from confessional oriented national school to school.

Keywords: pedagogical legacy, pedagogical views, reception, education, primary school, educational literature, monographs, national education.

The formulation of the problem. Despite the fact that a prominent Ukrainian poet Taras Shevchenko (1814-1861) was not a professional teacher nevertheless there is every reason to talk about the great interest of the author "The primer of East Russia" to issues of education in that days. In particular, his pedagogical views partly reflected in poetry and mostly in the stories and diary. Original way they were implemented in the textbook "Primer of the East Russia".

However the scientific understanding of educational heritage T. Shevchenko began only in the twentieth century and started more liven mainly eve of such anniversaries as 100, 125 and 150 to his birth. Holistic studies of the latest publications dedicating the reception of pedagogical legacy still doesn't. But everyone knows that he was the founder of modern Ukrainian literature.

Analysis of recent research and publications in which a solution of the problem. Shevchenko's pedagogical views and educational activities has repeatedly been in the field of academics. Chamelet J., F. We assume D. Antonuk examined the Shevchenko's attitudes of to Sunday schools. Teacher training ideas of the famous ukrainian poet were analyzed by V. Domanytskiy [1; 2], P. Chavdarov [8; 9] and

others. Most scientists were researched "The primer of the East Russia" [3; 5; 6; 10]. A. Pronikov had analyzed the problems of parenting in the works written by Taras Shevchenko through art. Y. Stuparyk drawn the attention to the use of the Shevchenko's traditional pedagogy.

There were not special pedagogical papers which has been analyzed the specifics of the reception Taras Shevchenko's pedagogical legacy of modern scientists.

The **relevance** of the article caused an objective need for careful study and creative thinking about new methodological positions best achievements of modern Ukrainian researchers Shevchenko's pedagogical heritage and the lack of publications devoted to understanding the topic.

The purpose of research is revealing features interpretations of Taras Shevchenko's pedagogical legacy of Ukrainian modern scientists.

The main material of the research. Shevchenko had to know the "charm" of the old education. At 8 and a half years he was sent to a rural parish school. Such schools had existed since ancient times. They borrowed some (mostly formal) elements of Western education system, including Catholic schools in the 17th century. Parish school was confessional.

It is usually taught in lower representatives of the Church hierarchy and training mainly at the church books. The school read Book of Hours, the Psalms, studied science writing and arithmetic (arithmetic).

The methodology was focusing on the development of memory and symbolic world of school science far from the realities of Ukrainian life led on. There was what is in school for most children was difficult and uninteresting. In this school was often resorted to corporal punishment.

Taras Shevchenko not only graduated "Prist's science" but also served as a schoolboy-worker in the clerk named by P. Bogor. He even laid on him some teacher's responsibilities. Shevchenko had a good opportunity to explore the features of the old school. It expanded such educational disadvantages as contribution to the moral education of children.

The attitude to the poet's contemporary educational system has not been granted. He realized that the confessional school did not meet the public demand and would not give students the necessary knowledge, requires them mechanical mastering virtually useless material. In the story "The princess" Shevchenko colorfully described his school science teacher in particular spoke as "blind Sovhyrij" calling

him the Spartans in a jokingly manner. He remembered the so-called punishment arranged the Sovhij for the students, punishing them "in Spartan" rods.

However, Shevchenko knew that, despite all the shortcomings, confessional school was positive, promoted education. This school were instilling for students mostly because of the alien to Ukrainian symbolic world, absorbed and some ethnic elements. For example, clerks, teachers promoted Skovorody's creativity christianized and folklore. Therefore, in the poem written by A. A. Kozachkovskiy T. Shevchenko remembered as copied frying pan "and Carols" sodar three kings.

After the Prist's school Shevchenko was studding at various painters mastering his craft for a long time. This science was also characteristic of traditional, largely agrarian societies. Students master skills mastered by imitation. This applies not only crafts, but also military, religious and intellectual activity. In fact, this method of "handicraft training" (although already at a high level) practiced in the St. Petersburg Academy of Arts, where he studied during 1835-1845. Here he was mastering the art of the artist. Shevchenko was able to acquire knowledge from various fields including history, anatomy, art theory and others.

Teachers training ideas of the Enlightenment are reflected in the Shevchenko's stories. In particular, these works have affected educational idea of the power of the educational process the good human nature and its destruction due to adverse social circumstances and poor education. Particular attention is drawn to family education. So the main point of the story "Unhappy" (Ne schastliviy) is the thought of the sad consequence of the indifference of parents to educate children. The retired captain who has two offspring from his first marriage, married a woman who was distinguished by selfishness and immorality. It drives out of the stepdaughter's and stepson's house blinded by smallpox doomed to a miserable existence. Only cares about his son Hippolytus who lives absolutely nothing. The guy does not get the proper education and training, has no incentive to mental and moral development is perverse very selfish person. After all be trying to get rid of the spoiled son gives his soldiers. The researcher P. Kraliuk claims that the plot of the story is based on real facts. After completion of this story Shevchenko has told about the soldier named by Portsiyenka Y. in June 25, 1857 in the Diary. That soldier came from a noble family (he arrived in Novopetrovsk fortification at the 1st half of 1854). His story and the basis for the story.

Shevchenko attached great importance to public education. In the story "The artist" expressed speculation that the lack of education was the beginning of big disasters. But Shevchenko was far from being able to treat education as an absolute good. Much depends on educational items and the administration gets. For example, Shevchenko thought that when some hundred people literate only one is not good and evil ("The captain's wife"). In this situation educated people can use their advantages to operating other illiterate. Definitely "Teaching" is the story of "The twins" (Dliznuky).

The author traces the life journey of two twins illegitimate Zosim and Savvat showing how these same people influenced education and social circumstances. The basis of the story put the idea of the sensationalist oriented pedagogy. According to the human mind so called a "clean slate". Depending on education, training, social factors on this board there are "writing" formed personality. In the story "Walk with pleasure and not without morality" Shevchenko denied the existence of innate abilities, believing simplistic conventional wisdom that if some people are born drunkards, thieves, and so on.

In the story "The twince" was putting a unique educational experiment. There was a trace connected with difference in upbringing and education. After all social circumstances affecting nearly identical children genetically related (twins) who have received the same basic education and equal education at home. Such pedagogical experiment described in the story "The musician man" where two girls, sisters, Lisa and Natalie, a child really like, then find themselves in different situations and women represent opposite types.

Lisa enters the landlord Arnovskiy family where her sister corrupts lord and married the old landowner who was a morally crippled person. Otherwise the fate of her sister Natalie who married a poor but noble musician. Natalie appears in the story as loving wife, a happy marriage. In the story "The twinc", "The musician man" and others, the attention paid on the three factors from the perspective of the author, determine the formation of personality, habits acquired in childhood, which is mainly the result of family education; the impact of the institution; the influence of the social environment.

In the story "The twinc" and other prose works held view that education should be a moral person associated with grafting Christian values. Education without this items is rather evil which leads to sin. However, Shevchenko saw the factor of moral

education not only in Christianity. Equally important was for him and the arts. In some stories (especially in "The Artist" and "The musician man") Shevchenko based on the idea of the unity of aesthetic and moral, argued that art ennobles man contributes to its spiritual growth.

Teacher training ideas into Shevchenko's stories according to the modern scholars [4; 7] are mostly fragmentary since combining different pedagogical traditions. Shevchenko undoubtedly guided by the educational pedagogy valued "vital" essentially pragmatic knowledge and tried to distribute and promote them. However, the writer tried to combine educational ideals with the ideals of Christianity. Despite all the negatives of traditional schools Shevchenko showed some sympathy to it. In usual turned to traditional pedagogy somehow distanced from Christianity. For example, he used someone else's idea of the unity of Christianity ethical and aesthetic. This ancient Greek idea mainly embodied in "Primer of the East Russia" whose appearance has been associated with the development of Sunday schools in Ukraine. They have mastered the diploma not only children and adolescents but also adults. New socio-economic circumstances demanded that workers mastering even elementary diploma.

Due to this pragmatism and democracy Sunday school were a national focus guided by the clear teaching of the vernacular. So it could be an important factor in national life. They paid attention nationally conscious Ukrainian leaders including Shevchenko who showed great interest in such literature. He knew the "obituary" Kulish believed that the primer is made "perfectly noble" (Diary entry in the 10-th of December, 1857). These tutorials was close to Shevchenko's "Primer of east Russia".

The author of the first book "Taras Shevchenko's pedagogical ideas" [8] devoted to the study of pedagogical views. There was the Ukrainian poet Sava Chavdarov. The mentioned works were collected and systematized with Shevchenko's statement on education and training, the role of the family in the education of children below the angle considered works of art, detail on the history of "Primer of the East Russia". Its importance for the development of education in their native Ukraine language.

S. Chavdarov compiled the evidence of the contemporaries of Shevchenko to the children, found the artist views on women's education, outlined his educational ideal and others. However, S. Chavdarova dominated descriptive, numerous

excessive distortion of the of the marked cult of personality of J. Stalinin the book Later (in collaboration with M. Hryshchenko) S. Chavdarov has published the brochure called "Taras Shevchenko and public education" [8] and popularization series of articles in the press.

Of the current publications devoted to understanding the Shevchenko's pedagogical heritage is necessary to distinguish solid, It was described is the articles by P. Kraliuk article [4] and V. Yaremenko [10]. Thus, in the first of them based on the life path Shevchenko disclosed attitude of the artist to the contemporary education system, emphasized the role of the St. Petersburg Academy of Arts, where he acquired higher education in the formation of the poet's idea to promote Ukrainian history and traditional culture brokered popular painting canvases. P. Kraliuk also involves analysis of the poetry and prose of Shevchenko, which are inherent features of novel educational training and textbook "Primer of the East Russia" signed by the artist for elementary school students. According to the authors to end of life Shevchenko education of the general public was paramount task. Towards this end he planned to prepare for primary school textbooks and cheap books that not only would give basic knowledge but also formed nationally conscious citizens.

The article written by V. Yaremenko helps to the recipient understand Shevchenko's comment on individual works, including "Primer of the East Russia", says the world view of the poet and his educational views. Scientific interest to the Shevchenko's historiosophy, religious symbols, place and role of Christianity in forming pedagogical ideas Ukrainian poet is still exist. According to the researcher "Primer of the East Russia" indicates that Shevchenko considered to introduce of national education in Ukraine. It called "The East Russia" with censorship reasons. This tutorial was primarily moral and ethical and educational value Shevchenko was clearly the author's ability to achieve using religious symbols extraordinary semantic depth in all his works.

Conclusions. Analysis of new publications dedicated reception Shevchenko's pedagogical heritage modern scientists proved of relevance to current educational space of Ukraine. It should also be noted progressive educational views of the famous Ukrainian poet. They reflect Shevchenko's foresight in promoting the education of the general Ukrainian people, the urgent need to move from confessional oriented national school to school.

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Strategies of Masters' pedagogical education

Abstract: The article deals with different models of masters' pedagogical knowledge in high schools like: traditional model; traditional with a variation component at the bachelor stage; professionally-oriented; pedagogical; of professional growth (while teaching); complex; subject-pedagogical. The researches define the main criteria for creating a model of an expert; also show the importance of multi-level education in pedagogical education (basic level, specific and professional).

The article shows the qualities of a high school graduate.

Keywords: pedagogical education, a model of an expert, Master, levels of pedagogical knowledge, teaching practice, normative discipline.

Two-stage training of students at higher institutions develops a qualified teacher who is able to work in modern society. Pedagogical competence is very important among others. However, non-pedagogical high schools train specialists in certain fields and cease to train future teachers and professors.

Professional training of future Masters has 75 different directions that includes more than 17 job opportunities and more than 180 specialties.

Here are different approaches: pedagogical education of a future high school professor; non-professional training in the related fields and professional training (engineering, transport, medical fields) [4, p. 16].

Development of higher education is mostly connected with new approaches to the function of pedagogical activity of the graduates who study in non-pedagogical institutions, development their teaching skills and pedagogical competence.

Pedagogical education as an important constituent should be the basis of professional and personal development for every future Master.

Kuzminsky A.I. defines “pedagogical education” as the process and the result of the targeted development of the teacher’s general and pedagogical culture [2].

Shemprukh I. believes that pedagogical education embraces a cluster of different and complicated problems. It’s a versatile and multidisciplinary process, deals with different spheres of content and methods of activity, deals with different periods of time – the past, the present and the future, different territory – the country, Europe, the world. These and other aspects build a complicated didactic educative system [5].

Pedagogical education of a graduate of a non-pedagogical institution is important in his teaching education and development which is realized in a specially developed process where a future teacher gets different professional and ethic and moral teaching skills [4, p.13-14].

The research shows that the graduate who plans to be a future teacher should have the following skills:

- Be flexible in life situation, be ready for self-education, use knowledge in practice and solve different problems;
- Think critically, see the possible difficulties and try to find the ways of solving them; use new technologies; produce new ideas; have creative thinking;
- Use right information, collect the necessary facts for the research, analyze them, generate new ideas and hypothesis, and make necessary generalizations and conclusions;
- Be able to communicate with different social groups, co-work in different situations, be flexible in conflict situations;
- Develop once intellectual, moral and cultural skills [3].

Graduates of the following institutions took part in the research – Lviv State University of Internal Affairs, National University “Lviv Polytechnic”, Bukovyna State Medical University (Chernivtsi), National University of Water management and Nature Resources (Rivne). The research shows that the problem of psychological-pedagogical model of a high school teacher needs further investigation in the conditions of modern higher education development and is the object of our investigation.

The investigation of modern pedagogical education in higher (non-pedagogical) institutions (654 graduates, 5 high schools of Ukraine) proves that 29,5% (192 respondents) decided to be high school teachers, 45,3 % (296 respondents) don't plan to teach in the future, 25,2 % (166 respondents) haven't decided yet.

According to the polls we can outline the factors influencing the process of professional self-identification of graduates: not enough motivation, insufficient level of knowledge and skills, etc. [4].

Analysis of educational professional programs in twelve high non pedagogical institutions of Ukraine showed that it depends on the standards of higher education on the Master's level. It's clear that the sense of Masters' education in higher non pedagogical institutions is defined by normative and versatile constituents that are shown in educational professional program and educational characteristics of the non-pedagogical graduate [4, p.16].

Scientists define a hypothetical, presenting, prognostic model of the teacher's activity. Hypothetic model is a logical extension of qualification characteristics which presents some theoretical data about the teacher's skills and knowledge. This model needs further practical check in the educational process. Presenting model is a complex of professional, emotional, typical qualities of a teacher and develops on the basis of functions and duties. Prognostic model develops on the basis of presenting model and perspectives of development [1].

Content analysis of different models of the teacher's activity allows formulating conceptual points which develop the future teacher's model:

- personal significance of the model content;
- dynamics of the model content;
- availability of the model;
- accessibility of the model content;
- motivating significance;
- possible evaluating of the model constituents.

Versatile models of pedagogical education of high school graduates were elaborated on the basis of the results of our research and conceptual significance, integrative approaches, development of the pedagogical education according to different levels of accessibility.

The main models of pedagogical education of non-pedagogical high school graduates:

- traditional;
- traditional with a versatile element on the Bachelor's level;
- professionally oriented;
- pedagogical;
- competence development;
- complex;
- subject-pedagogical.

Each model includes the stages of pedagogical education of the non-pedagogical high school graduates, the content, methodological support, forms of education and also characteristics of pedagogical interrelation of the professor and the graduates.

Pedagogical education modeling should have multi-level characteristics. Multilevel education means taking into account different peculiarities of the graduates' education in a certain field and contently reflects by versatile part of education. The models are based on the idea of content development of the pedagogical education which defines knowledge perception factors: general, specific and high [4]. Every level of knowledge perception is defined by a partial or total development of teaching competence which is caused by the model content.

Normative basic (general) level means getting normative knowledge presupposed by the current legislative system for teaching graduates in high non pedagogical schools ("Psychology and Pedagogy of High school", Methodology of teaching at High school", "Philosophy of Education") and teaching practice as planned in a certain high school. By the way, the list and content of pedagogical competence is constant and meets the requirements to a high school teacher.

Normative basic (specific) level presupposes studying the content of pedagogical education on the normative basic level and studying the versatile disciplines which create effective teaching skills in specific fields of education (economics, law, theological, etc.). An important element of pedagogical education is the possibility of teaching practice on the constant basis. Normative basic (specific) level of teaching education is characterized by pedagogical competence of a high school graduate on the normative basic (general) level and necessary practical knowledge and skills as a result of pedagogical practice.

High level of pedagogical education is defined by complete pedagogical competence on the general and specific levels of pedagogical education and individual development and professional growth.

The choice of pedagogical models is caused by certain factors:

- specific characteristics of a high school;
- the discipline content;
- subject pedagogical competence of the high school teachers;
- educative methodological and material resources of the high school.

Let's specify the models of pedagogical education.

Traditional model of pedagogical education reflects the existing system of graduates' teaching in the high schools where students are able to get Master's degree. This model is professionally oriented and based on normative basic knowledge of the students on the Bachelor's level and on the level of their professional education on the Master's level which develops basic pedagogical skills and knowledge, an ability of analysis, etc. in teaching process.

Model of pedagogical education with a versatile element on the Bachelor's level reflects the system of pedagogical education based on the basic and versatile elements and is defined for Bachelor students as it follows:

- basic element ("The basis of psychology and pedagogy", "Psychology and Pedagogy");
- versatile element ("Law psychology", "Economic Psychology", etc. "University Education" or "Introduction to the Profession").

For the students of the Master's level:

- "Pedagogy and Psychology of High School", "Methodology of Teaching at High schools", "Philosophy of Education".

Pedagogical practice is compulsory for the students presupposed by an educational plan. This model is also professionally oriented, is based on the normative basic element, that is why describes the content of pedagogical education on the normative basic (general) level.

Professionally oriented model of pedagogical education is realized on the Master's level and gives professional knowledge. This model is good for graduates who chose to be teachers at higher institutions. It presupposes studying versatile disciplines and constant teaching practice.

Professionally oriented model is possible to be used only in the institutions where graduates are able to have Master's degree and become future teachers and professors of high schools (e.g. Lviv State University of Internal Affairs).

Pedagogical education according to this model presupposes pedagogical competence and teaching activity on the normative basic level. Besides, the normative basic (specific) level of pedagogical education is characterized by the necessary teaching skills.

Pedagogical model of pedagogical education presupposes teaching students on the Master's level on both professional and pedagogical basis. It gives an opportunity to get another specialty during a certain period of time (1,5 – 2 years, 1,4 – 1,9 years) which allows getting a future job and professional development and self-development. Thus, the educational program should include normative and versatile disciplines according to the requirements. This is the list of education disciplines:

- Normative ("Pedagogy of High School", "Psychology of High School", "age and Pedagogical Psychology", "Methodology of Scientific Investigations", "Methodology of Teaching", "Philosophy of Education", "Professional Psychology", "Law aspects of Higher education", pedagogical practice, Master's thesis, etc.).
- Versatile ("Pedagogical Deontology", "Conflict Management in teaching staff", "The basis of pedagogical mastership", etc.).
- Constant pedagogical practice.

This model presupposes knowledge on all three levels of skills and knowledge
- normative basic, specific and high levels.

Competence model development is for the teachers who didn't get necessary teaching skills and knowledge being graduates at university (e.g. Bukovyna State medical University (Chernivtsi)).

It presupposes short term training (3-6 months).

It's for:

- Practical staff with the work experience of more than 5 years;
- Staff with the second education (another qualification);
- Masters who didn't get necessary knowledge and skills in the field of High School Education.

Pedagogical education presupposes theoretical and practical components. Theoretical component includes:

- Conceptual basis of High school development according to Europe integrating process;

- Modern forms and methods of educational process organization;
- Total experience of the educational process development abroad.

Practical component should be based on the interrelated system of trainings and seminars. The main goal of the trainings is the development of the necessary teaching practical skills:

- Pedagogical interrelation development on different levels (Teacher – Student, Teacher – Teacher, Teacher – Authorities, Teacher – Society).

- The use of methods and tools of preventive measures to cope with the conflict situations.

- Development of pedagogical culture.

Very important in this model is peer observation and lesson analysis by the teachers.

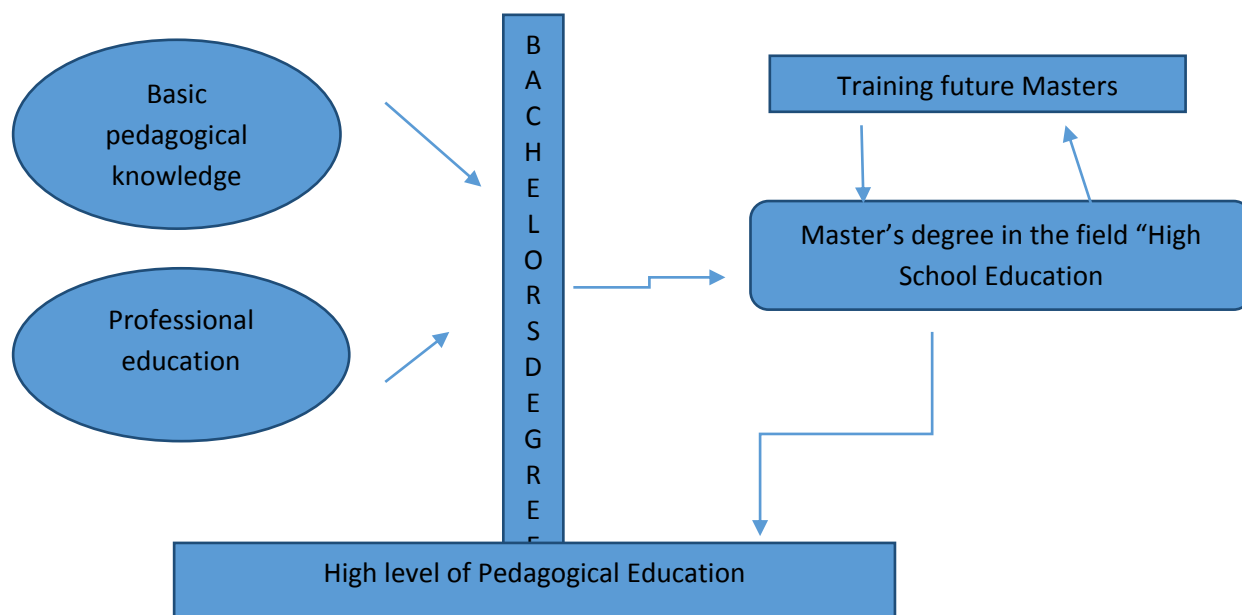
To make this model into life the following tools are used: “Teaching Mastership School”, “Young teachers’ school”, post graduate education.

The most effective is the complex model based on the basic and versatile components of education, which students received in the process of studying. The advantage of this model is personal development of each student.

As an alternative to the rest, there is a subject-pedagogical model where pedagogical knowledge and practice go together with the subject knowledge (Pic.1).

Such skills and knowledge graduates can get in different education institutions.

Thus, perspective models of pedagogical education of the high school graduates should provide effective teaching training for future teachers and professors, develop their teaching knowledge and skills, also create opportunities for effective pedagogical projection to meet the requirements of the labor market and solve the professional and pedagogical problems in modern education system, do the research work.



Pic. 1. Professional Pedagogical model of pedagogical knowledge of high school graduates in the non-pedagogical field

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Development of the concept of spirituality within pluralism, scientism and postmodernism context

Abstract: Current paper analyses various possible meanings of the term "spirituality" and its understanding within the concepts of pluralism, scientism, and postmodernism. Basing on thorough investigations of recent philosophic and historical recourse, the sociological and philosophical aspects of spirituality have been distinguished and described. Description of how spirituality is broadly defined in the context of scientism and postmodernism has been provided. Clear grasp of the concept of prime reality has been suggested, examining the assumptions about the nature of the world and what is real. Detailed attention has been drawn to the question of human personhood and acknowledgment of its distinction from purely scientific descriptions of Homo sapiens (even if the distinction is not accepted). Description of the concept of death and the significance of afterlife has been molded, considering its rationality and relation to other worldwide questions. Explanation of epistemology and epistemological questions (how it is possible to know anything at all) has been given. Clarification of ethical notions and explaining of what is right or wrong from the point of view of classic and modern science have been completed. Laws and regularities of the development of human history and its impact on the formations of the "spirituality" concept have been studied.

Keywords: spirituality, context of scientism, postmodernism study, concept of prime reality, human personhood, epistemology, ethic values, human history.

Recently people's claim for spirituality guiding their behavior has become very urgent, which is comprehensible from the volume of sources about this problem. Nursing is the sphere of human life with the highest level of demand for spirituality in its practice, especially in taking care of ill people. However, the process of transformation of the spirituality studies into their current stage was complicated. The purpose of this paper is to analyze the notion of spirituality from sociological and

philosophic points of view, its place within the concepts of scientism, postmodernism, epistemology and ethics, as well as questions of prime reality, personhood and afterlife theories.

Spirituality always had a fundamental meaning in the problems of human being, its purpose in life, sense of living and social life. According to D.G. Benner, "Spirituality is the way we live our life in relation to that which is transcended to our self" [1]. P.C. Jupp found out that "spirituality relates to metaphysical, focusing on the supernatural, but carrying for many a belief in the "solid" nature of reality" [2]. P. Hyson defined spirituality as "that which pertains to the relationship between the divine and the human" [3].

Various scientific traditions consider spirituality as religiosity or intelligence with morality evidence. Sociology evaluates spirituality as the side of a person's genetic activity, realized in social life, and scrutinizes spirituality in such aspects: social, integral and existential, where spirituality becomes the content of the sociality. Philosophy considers spirituality as the norms of human consciousness, which correlates to the forms of knowledge. Here spirituality links with religion, moral values, and confessional postulations. In more details, during scientism period, the focus was not on the individuality but exclusively on science as the highest form of social consciousness. This approach supports the ideas of science's ability to make people happy. Drawbacks show that human's spirituality factors are neglected. Perception of spirituality in postmodernism is diverse, whereas a person finds himself on the edge and must look inside himself and see the reality of life without the goal and spiritual sense.

Scientism is the concept, which accords the absolutizing of the role of science in the cultural system and intellectual life of society. It originates from the philosophy of the late 19th – beginning of the 20th centuries, when the question of science role and its place in culture arose, resulting from its intensive development level. In such conditions scientism and anti-scientism appeared. Particularly sharp conflict was ongoing due to the achievements and consequences of science. Negative features of scientism deal with its irrespective attitude toward complicated composition of a human life, where science occupies important but not dominant position. As a scientific sample, scientism obviously analyzes natural and so-called Math sciences. It is opposed by anti-scientism, which underlines the limits of scientific possibilities for solving key problems of human life, and evaluating science as hostile to its essence.

Anti-scientism explains social-humanity's knowledge entirely as the form of consciousness, which cannot apply the impartial principles of the scientific research.

In fact, postmodernism is, primarily, a special way of perception of the world, a spiritual state, typical for crisis era. This state is characterized by the feelings of disappointment, despair, loss and hopelessness of existence. Postmodernism remains no hopes, proving crisis moments within the society. According to it, there is nowhere to move forward. A person, who finds himself on the edge, scrutinizes totally innovative images of life and death and existence itself, which led him to this terrible condition. So far, the major task is to take any real step towards yourself, have a look inside yourself, gaze yourself and the whole world from the distance of this edge limit. Such look reveals full unhidden truth of the messy and still disorganized human life, devoid of high goal and spiritual meaning.

Consequently, in healthcare spirituality plays the role of the bridge between reality and mystery, with the target to confirm needs for both components. In this sense, spirituality helps to understand the reason why people decide to take care of somebody, especially, when it deals with seriously sick people [4]. As it follows from the discovery of C. Puchalski and B. Ferrell, spiritual aspects have entered the content of medical, nursing, social working and psychological training [5]. Besides, they underline the importance of team working, care programs, and planning.

Accordingly, the awareness of the world nature around us is essential. The existence of a person in the environment and society means the approval of his real possibilities. They come true through actions and spiritual implementations. Therefore, the nature of the world around a human being is the integral spiritual creation, which encourages practical performance. Classic dichotomy shows prime reality rather as "life world" than opposition to consciousness. Every person has individual spiritual nature, in which subjective existence means prime reality. Without it, human individuality and spirituality can vanish.

The problem of a human being is the core question of philosophy, whereas it means the subject of social-historical process, material, and spiritual culture. Human personhood is the center of spirit, which qualifies the inside concentration. Personhood means "individuality", which includes several self-notions: self-awareness, self-authoritativeness, and self-determination. However, personhood is the attribute of a real person with spiritual conducts, due to which human individuality attaches other human characteristics: psychological peculiarities, gender and attitude

towards other people. J.W. Wentzel van Huyssteen and E.P. Wiebe state that modern approach considers person's consciousness of interrelationship of all substances in nature as spirituality itself [6].

Spirituality of a person is a treasure, the wealth of thoughts and power of feelings and confidences. This is a possession of a progressive human being, who has a wide world overview, including scientific and technical areas, and high cultural feelings and values. Many progressive philosophers tried to describe a perfectly intelligent and spiritually developed person. N.G. Chernyshevskyi considered such person as somebody, who gained a lot of knowledge, but, at the same time, got used to quick and correct rationality as for proper and improper, fair and unfair occurrences, or, as it can be described by one word, this person got used "to think", and, finally, a person, focused on achieving the noble direction, that is to reach a feeling of strong affection for everything positive and exquisite. All these three qualities – wide knowledge, habit to think and noble feelings – are necessary for developing an educated personality, in the broadest meaning of this world.

A person of the democratic society is being formed nowadays. Wide horizons of science and technologies open before him. Nature science is constantly in the process of development and always penetrates deep inside in the dominant branches of technological progress – electrification, complex mechanization, production automatization and chemicals' implementation to the key branches of the national economies, and productive usage of nuclear power. Modern society management is based on the humanities. However, this knowledge does not only lead to the definite activity, but they also prove a common viewpoint of the world, common laws of natural and social development, due to which a scientific approach to the comprehension of the phenomena is being formed.

Analyzing human life on the Earth is impossible without considering the category of death and afterlife. Death is one of the strongest limits for a person, the awareness of which forms the background of spirituality and fills people's lives with sense. Death is inevitable and natural that is why it is unreasonable to be afraid of it. Although, opposite opinions affirm it as a transfer to another existence, continuation of ourselves, our personalities' and spirits' in a different form, which currently has no scientific prove. B. Eaton described afterlife as the extension of life "in another domain, another sphere of existence" [7]. In this concern, we can charge about

human spirituality, because only due to spirit essence the theories of afterlife become reasonable. Spirituality is the way, which leads to human “immortality”.

People attempt to gain knowledge about all facets of existence. Therefore, cognition is the natural process of the world. The branch of the philosophy, which examines the knowledge, its nature, development process and correlation with actual reality, is epistemology. Epistemology has the connection with biology, which results in the development of gender epistemology. Moreover, social epistemology examines collective knowledge and analyzes cultural, religious and scientific concepts. The importance of mastery (abstract or material) is apparent for a human being, while without it, a person has no belief and trust in everything around, including ideas and spiritual evidence.

Epistemology is one of the basic areas of philosophy, which studies the problems of the nature of comprehension and its possibilities, correspondence of the knowledge with reality; examines general backgrounds of comprehension and identifies regularities and conditions of its reliability and validity. Basing on comprehension, a person can dynamically self-identify in the world and become a subject of the historical process, by means of not only satisfying his intellectual interests, but also fruitfully transforming the nature, improving the techniques and technologies, enhancing the efficiency of the society management, widening his freedoms and spiritually enriching himself. In the current conditions of knowledge industries, over half of the domestic product is produced in the highly developed countries. It proves the essentiality of the philosophic study about the regularities of the comprehension process. Modern philosophy of comprehension demonstrates its being highly interested in scientific and non-scientific forms of knowledge, computer technologies, neurophysiology, and processes of humanization of science.

Some knowledge is right, some - is wrong, and it is up to human morality to determine both of them. Ethics studies the phenomenon of morality, which means the system of views, norms, and evaluations guiding human conduct. Here spiritual implementations are inevitable, while morality proves the high level of development, spiritual maturity of a person within his relationship with the world and other people. Whole ethics' tradition discovers what is appropriable for an individual and meets non-material laws of human existence. Ethics occupies the central position in the humanities and social studies of nursing, while it displays religious moral sources of

cares for people and relationships with others as fellows who need the custody of one another [8].

The essence and correspondence of spirituality and morality inside a person is one of the basis of anthropological problematic. Nowadays an idea about identification of spiritual and moral aspects of human life is very widespread. In our opinion, it leads to the minimization of the meaning of the notions "spirituality", "spiritual health", "spiritual values" and others. It can be explained by the fact that modern humanitarian sciences analyze these notions from the point of view of definite branch priorities. Within social understanding, spirituality is a unique intellectual-sensual-emotional state, a person's ability for self-improvement through comprehension of the spiritual values of culture. From the religious point of view, spirituality has a different meaning: this is the deep essence of a human being, spiritual revival of a person by means of his personal meeting with God.

One common category, which can link all discussions above, is, of course, human history, which means the process of the development of human society. Civil history started from the moment when a human being realized himself as a personality, identified his functional directions and began to act according to society development laws. Scientists traditionally differentiate two main periods of the study: the first begins from the moment of Homo sapiens appearance until the Axis of Times, and the second deals with the scientific-technical era. Every new step of human history initiated the new approach to human being's existential and metaphysical concepts, including spirituality.

Issues of spirituality remain the discussion points for scientists, while spirituality traditionally associates with not only the inner state but also activity of perception and cognition of higher values, which guide people's behavior. Having analyzed some philosophic directions such as scientism and postmodernism, I can conclude that alongside human history, the material and metaphysical aspects of knowledge accumulated. As it follows from the scrutiny of the principles of epistemology, ethics, prime reality study, personhood and afterlife ideas, being the part of the real world a person performs actual actions, which are inspired by spiritual values and finally find their recognition in mutual care.

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The impact of social adaptation the human for the perception of music

Abstract: The article is devoted to determine the impact of social-adaptation to human perception of music. It is shown that social exclusion is manifested in the choice of musical discourse.

Keywords: personality, social exclusion, the musical discourse, harmony, personal qualities.

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Вплив соціальної адаптованості людини на сприймання музики

Анотація: Стаття присвячена визначенню впливу соціальної адаптованості людини на сприймання музики. Показано, що соціальна дезадаптація виявляється у виборі музичного дискурсу.

Ключові слова: особистість, соціальна дезадаптація, музичний дискурс, гармонійність, особистісні якості.

Вступ. Одним з важливих факторів соціалізації особистості є рівень художньої культура взагалі й музичної зокрема. Ступінь соціальної адаптованості людини зумовлює її культурні запити та музичні уподобання. Дослідники з музичної психології все частіше й частіше фіксують той факт, що переважна більшість сучасної молоді надають перевагу музичним творам з сумнівним рівнем художньої цінності. Більш того, певні музичні напрями, не лише гальмують розвиток художнього смаку молоді, а й становлять загрозу навіть психічному здо-

ров`ю людини. Естетично спустошені "зразки" масової культури є підґрунтям виникнення бездуховності, нігілізму певної частини громадян нашого суспільства. Образ "людини, що розважається", є більш прийнятним для сучасної молоді в ставленні до музичної культури, ніж шанобливий, піднесений, осяяний усвідомленням трансцендентності образ великого мистецтва.

Зазначені тенденції не можуть не впливати на загальний розвиток художньої культури особистості, на рівень її особистісної зрілості та гармонійності, а отже й соціальну адаптованість. Тому, встановлення зв'язку зазначених властивостей особистості із особливостями сприймання нею музики є актуальним.

Об'єкт дослідження: процес сприймання музики особистістю.

Предмет дослідження: психологічні особливості сприймання музики особистістю з різним ступенем соціальної адаптованості.

Мета дослідження полягає у з'ясуванні зв'язку особливостей сприймання музики із ступенем соціальної адаптованості особистості.

Відповідно до предмета та мети дослідження було висунуто гіпотезу про те, що вибір певних музичних дискурсів відображає особистісні властивості людини, завдяки чому можна визначити ступінь її гармонійності та особистісної зрілості, а отже й соціальну адаптованість.

Музика впливає не лише на психічний стан людини, а й на формування її особистості, оскільки людина певним чином реагує на музичну тканину. Психологічна тканина мистецтва уявлялася Л.С. Виготському у вигляді переживань, які відображають спосіб існування людини у світі, її екзистенцію. Сприймання музики розкривається як особливий різновид художнього відображення реальності, що складається з опосередкування й узагальнення почутого та перетворення його сприймаючим суб'єктом у специфічні музично-звукові образи-символи.

Сприймання музики людиною може бути описано як суперпозиція певного музичного дискурсу, що відповідає психологічним властивостям слухача та особливостям субкультури, під переважним впливом якої він знаходиться в процесі соціалізації. Соціальна адаптованість людини передбачає наявність певних рис особистості, що складають її гармонійність та особистісну зрілість. Ці властивості особистості формуються при наявності певного соціокультурного простору, який має й свої музичні особливості. Виходячи з цього, нами були створені музичні фрагменти, сполучення яких виражали сутність, основні ознаки і форми

музичного дискурсу. Психологічний зміст, що був відображений у цих фрагментах, виступав як своєрідна характеристика особистості.

Для вивчення особистісних якостей були застосовані: метод визначення рівня суб'єктивного контролю (Дж. Роттер), метод нарративу (Н.В. Чепелєва), методика "Я, Значущі, Інші" О. Купреєвої, мотиваційний тест Х. Хекхаузена, тест фрустрації Розенцвейга, метод непрямого дослідження самооцінки О. Федотової. Для виявлення рівня соціальної адаптованості був застосований метод аналізу документів та метод експертних оцінок. З метою визначення характеристик музичних фрагментів був застосований метод експертів, фокус-груп.

Організація та експериментальна база дослідження: на етапі пілотажного дослідження взяли участь 97 осіб, студенти навчальних закладів різного рівня акредитації. На першому етапі дослідження (створення музичних фрагментів) взяли участь 16 експертів - фахівці в галузі музикознавства. На цьому ж етапі взяли участь 270 студентів, які також оцінювали психологічний зміст музичних фрагментів. На другому етапі взяли участь 119 студентів, а на третьому з них було виокремлено дві контрастні групи (по 30 осіб), які брали участь у роботі фокус-груп.

Основні результати. Спираючись на висновки теоретичної частини дослідження стосовно музичного дискурсу нами було створено музичні фрагменти, які виступали як стимульний матеріал. Після прослуховування кожного фрагменту досліджуваним пропонувалося описати: настрій музики, яку вони почули; які думки в них викликала ця музика; які зорові образи виникли під впливом музики та що хочеться робити, слухаючи певний музичний фрагмент.

Визначені в результаті емпіричного дослідження інформативні музичні фрагменти були надані експертам-фахівцям для оцінки можливості використання їх в якості складових музичного дискурсу відповідно до психологічного змісту. Статистична обробка отриманих даних показала співпадіння сприймання психологічного змісту музичних фрагментів експертами та студентами.

Музичні фрагменти були створені відповідно до психологічного змісту світосприйняття, який відображала музика. Фрагмент №1 «аморфний»: ритм нестійкий, основна його риса – текучість, мелодика практично не простежується. Динаміка характерна своєю однорідністю, має невелику гучність. Музика не має чіткої музичної форми. За психологічним змістом ця музика відображає пасивність, байдужість, відмову від цілеспрямованої діяльності. Фрагмент №2 «дра-

матичний»: ритмічна складова нагадує широкий подих. Чітко й виразно звучить ніжна мелодія, постійне чергування мажоро-мінорних кольорів спонукають слухача емоційно напружуватись та співчувати. Психологічний зміст цієї музики відображає складні душевні переживання людини. Фрагмент №3 «енергійний»: простий чіткий ритм, що дає імпульс енергії. Мелодія стрімка, постійно прямує до кульмінаційного сходження, а потім починає рух знову, - знизу до гори. Психологічний зміст: музика, яка спонукає до дії та руху. Фрагмент № 4 «примітивний»: простий мотив, який можна легко та швидко запам'ятати. Має риси розважальної, популярної естрадної музики. Психологічний зміст: музика відображає характер людини, яка має легковажний, спрощений підхід до життя. Фрагмент №5 «гармонійний»: ритміка проста, мелодика консонантна, врівноважена. Динаміка звучання контрастна та відповідає класичним музичним засобам виразності. Психологічний зміст: витонченість та досконалість гармонії викликає благоговіння перед величчю та красою вічних істин. Фрагмент №6 «деструктивний»: повторна ритмічна фраза звучить протягом всього твору без змін. Темп рухливий. Мелодична лінія не має чіткої характеристики. Переважають низькі частоти, що дає ефект збудженості та агресії. Психологічний зміст: імітація руйнівного або хаотичного дійства, що викликає відчуття поглинутості, втрати суб'єктності, бажання бездумно приєднатися до вакханалії.

Виходячи із завдань дослідження, для вивчення зв'язку особистісних властивостей, що зумовлюють соціальну адаптованість людини, з вибором музичних фрагментів ми розподілили досліджуваних відповідно до їх музичних уподобань. Оскільки нам було необхідно знайти зв'язок між особистісними якостями досліджуваних та їх сприйманням музики, ми взяли до розгляду лише дві групи студентів відповідно до їх музичних уподобань: 46 осіб, які на перші місця вибирали другий, третій та п'ятий музичні фрагменти – група „А” та 33 особи, які на перші місця вибирали перший, четвертий та шостий музичні фрагменти – група „Б”.

Аналіз вибору музичних фрагментів досліджуваними обох груп показав зв'язок між властивостями особистості та музичними уподобаннями. Кореляції виборів музичних фрагментів з результатами за методикою РСК показав наступне: досліджувані групи «А» і «Б» досить чітко розрізняються за модальністю локус-контролю. Особи з екстернальним локусом контролю обирають музичні дискурси, що за своїм психологічним змістом відображають невизначеність,

аморфність світосприйняття або його спрощеність, примітивність; особи з інтер-нальним локусом контролю, навпаки, обирають енергійну, цілеспрямовану музику.

Рівень розвитку рефлексії та ступінь здатності до інтеграції свого життєвого досвіду представлені на рис.1.

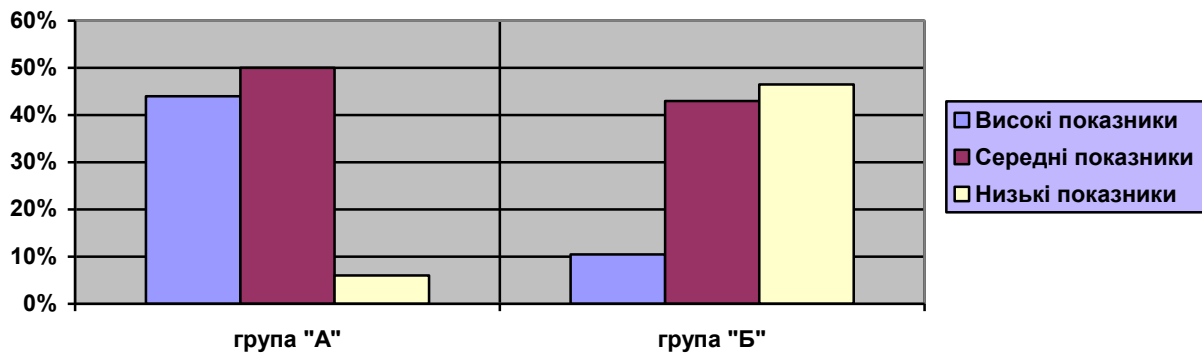


Рис. 1. Розподіл досліджуваних відповідно до ступеню та інтеграції свого життєвого досвіду

Достовірність відмінностей результатів досліджуваних групи «А» та групи «Б» за ознаками «рівень розвитку рефлексії» та „ступінь інтеграції свого життєвого досвіду” підтверджена за критерієм Вілкоксона-Манна-Уїтні. Такі результати є дуже показовими, оскільки адаптивність тісно пов’язана із здатністю людини інтегрувати життєвий досвід.

За результатами методики „Я, Значущі, Інші” також виявлені значні відмінності (див. таблицю 1).

Таким чином, емпіричне дослідження показало наявність зв’язку між вибором музичних фрагментів, що мають певний психологічний зміст та особистісними властивостями досліджуваних.

Для дослідження особливостей сприймання музики студентами з різним ступенем соціальної адаптованості із раніше виокремлених (відповідно до вибору музичних фрагментів) груп було запрошено по 30 осіб. Вибір цих досліджуваних відбувався відповідно до ступеню їх соціальної адаптованості. До групи осіб з високим рівнем соціальної адаптованості увійшли успішні студенти, які за визначенням експертів були особистісно зрілими та добре навчалися. Протилежну групу складала студенти, які мали вкрай низьку навчальну успішність (на грані відрахування), конфліктували з викладачами, були відторгнені групою.

Таблиця 1

**Розподіл за типами міжособистісних стосунків
у групах досліджуваних**

Тип стосунків	Кількість досліджуваних (у %)	
	Група "А"	Група "Б"
Асертивний	9	0
Дисгармонійний	3	6
Захисний	22	36
Тип співробітництва	24	0
Парний тип	5	2
Залежний тип	26	32
Егоцентричний тип	12	24

Виявилось, що соціально адаптовані студенти сприймають психологічний зміст музики адекватно. Так, при сприйнятті музичного фрагменту № 3 (енергійна музика) у дезадаптованих студентів виникали образи, пов'язані з агресією (бій, полювання, битва). Спостерігалось це в три рази частіше, ніж у соціально адаптованих студентів, у яких ця музика викликала в уяві картини напруженості та динамічності — катання з гір, змагання, досягнення мети.

Значні відмінності мають місце у сприйманні музики фрагменту під назвою "гармонійна". У адаптованих студентів вона викликає радість, задоволення, захоплення, піднесення. Ця музика майже у всіх досліджуваних цієї групи викликала мажорні, оптимістичні емоції. Прослуховування цієї музики викликало у них бажання піти в театр (в оперу, подивитись балет); малювати, танцювати щось старовинне, одягтись як в час середньовіччя; поринути в часи давнини (читати про бенкет, подивитися на лицарський турнір).

У соціально дезадаптованих студентів висловлювання були зовсім інші. Гармонійна музика викликала в них сонливість, нудьгу, роздратування. Внаслідок прослуховування цієї музики їм хотілося щось зламати, розкидати речі, стріляти або піти в бар з друзями, щоб покепкувати над кимсь. Слід підкреслити, що у студентів зазначеної групи при слуханні музичного фрагменту під назвою "деструктивна" виникало задоволення (позитив, підйом сил); відчуття влади над іншими («я кращий за всіх»); декотрі відмічали захоплення від злиття з музикою,

через те, що тіло не слухається («мене штормить»). Адапованим студентам, навпаки, ця музика не подобалась. Вони відчували роздратування, головний біль, різноманітні негативні емоції та асоціювали цю музику з образами хаосу, деградації, руйнування.

За результатами дослідження виявилось, що студенти, у яких наявні внутрішні конфлікти, агресивність, яким притаманний ірраціональний вихід із ситуації фрустрації, неадекватна самооцінка, віддавали перевагу музичним фрагментам деструктивного характеру. Студенти, у яких відзначалась висока особистісна зрілість, які виявляли розвинуті навички рефлексії, продуктивність психологічного захисту, обирали музику драматичного змісту або гармонійну. Досліджуваним, у яких яскраво проявилася відсутність суб'єктності, недостатність функцій прогнозу та цілепокладання, слабка здатність до інтеграції свого життєвого досвіду, подобалась музика аморфного характеру. Ці результати були покладені в основу розробки проєктивної методики визначення рівня гармонійності та особистісної зрілості на основі вибору певного музичного дискурсу.

Висновки

Сприймання музики може бути представлено через поняття музичного дискурсу, що призначений для опису емоційно-чуттєвого сприймання світу та є базовим компонентом музично-комунікативної дії.

Встановлено зв'язок психологічних властивостей осіб з низьким рівнем соціальної адаптованості з особливостями сприймання ними музики: їх емоційному настрою та загальному фону світосприймання відповідає музика деструктивного характеру, що символізує агресію та має небезпечний вплив на психічний стан людини: підвищена гучність, неприродні звукочастотні характеристики, надмірна повторність, яка несе гіпнотичний, трансний ефект. Відсутність суб'єктності, нерозвиненість функцій прогнозу та цілепокладання, слабка здатність до інтеграції свого життєвого досвіду корелює з вибором музики, що символізує байдужість, відмову від цілеспрямованої діяльності, пасивність.

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The practice-oriented approach to the educational process in higher school

Abstract: The article deals with the problems of improving the learning process in higher education. The emphasis is put on the fact that changing the vector of the educational process from a knowledge-based approach to a practice-oriented approach to the results of the educational process has inevitably led to the formulation of the problem of technologies and teaching methods by which this practice-orientation will be achieved.

Keywords: learning process, interactive teaching technologies, practice-oriented approach, basic competence of the student, quality of education, modern pedagogical technologies.

Currently, almost all developed countries have realized the need to reform their education systems so that students could really become the central figures of the learning process so that the cognitive activity of the learner is the focus of educators, researchers, developers of educational programs. It is the process of learning that is important, not teaching, as it used to be (and still is) in a traditional training. Therefore, in the education there is a question "How to achieve a guaranteed result in the learning process?". The didactics answer this question using teaching technologies.

The studies of famous philosophers, teachers, psychologists of Ukraine and the neighbouring countries are devoted to the deep interpretation of the modern strategies of the development of higher education (A. Aleksyuk, V. Andrushchenko, J. Behan, L. Barns, V. Cooper, J. Zymnyey, O. Dolzhenko, V. Lyaudys, O. Plakhotnik, M. Rozov, V. Rosin, etc.).

Changing the vector of the educational process from a knowledge-based approach into a practice-oriented approach to the results of the educational process has inevitably led to the formulation of the problem of technologies and teaching methods by which this practice-orientation will be achieved. Active and interactive forms and methods of training play the primary role in achieving these goals. The student is to a greater extent a subject of educational activity in an active training than with a passive one and enters into a dialogue with the teacher, actively participates in the cognitive process, performing creative, searching and problem tasks. Interactive teaching methods are the most appropriate for the learner - oriented approach, as they assume co-education (collective, cooperative learning), where both student and teacher are the subjects of the educational process. The teacher more often acts only as the organizer of the learning process, group leader, facilitator and the creator of conditions for the students' initiatives. Interactive learning is based on the students' own experience as well as on their direct interaction with the mastering area of professional experience.

The training with the use of interactive educational technologies involves such a logic of the educational process which is distinctive from the usual one: the training goes not from the theory to practice but from the formation of the new experience to its theoretical understanding through application. These problems are of interest primarily for post-graduate students, students of master's educational programs and training programs of the management of educational institutions, managers of higher education. These students, adults and motivated people who already work and study in higher educational institutions, consciously build their future educational and management career, seek to gain not theoretical knowledge but real competence that are able to provide them with the opportunity to solve complex problems and demonstrate a high level of modern pedagogical technologies.

One of the ways to solve this problem is to upgrade higher education, to transfer of attention from the learning process to its result, to focus the content and organization of training on the competence approach and to search for effective mechanisms for its implementation [4].

Analyzing the essence of the traditional and widespread educational process in higher education institutions, it should be noted that it consists of the transmission of knowledge from the teacher to the students. The teacher is a key figure in it. He/she defines learning objectives, its content in accordance with the program and

also chooses fairly traditional forms and methods of teaching: lectures, seminars, practical classes, controls the quality of the training. It is necessary for students to master the knowledge that is passed to them, that is, attending the classes, speaking at seminars, performing practical tasks, passing exams and tests. A passive position of the student often has a subordinate nature in relation to the position of the teacher. The training can not be considered effective with such a passive position of the student. The traditional one-sided communication, the knowledge transmission can be justified only in case of insufficient information that could be found independently, or inability to receive it not from the teacher but in a different way.

The existing organization of the educational process in higher education seems quite logical, thoughtful and holistic and has satisfied (or almost satisfied) the needs of the society with the specialists who have been trained. However, the numerous interviews of the authors with students and teachers of Kyiv National Taras Shevchenko University, Vinnytsya National Pirogov Memorial Medical University have demonstrated the discontent of both teachers and students with learning outcomes. The main complaint of teachers is that students do not study whereas students insist on inadequate content and methods of "learning their queries and needs".

So, today we are talking about the need for changes of the forms and methods of teaching. An alternative to the traditional one can be the organization of the learning process where the efforts of the parties involved in it are aimed at ensuring the student's learning process. The activity of the teacher in this case is guided not by his own actions but by the actions and the activity of the trainee. The position of the teacher is becoming fundamentally different - he does not transmit knowledge but creates learning conditions for the student to be able to work using his own experience in various ways, which allows him to operate with various forms of knowledge. Undoubtedly, such a change of emphasis requires a change in the position not only of the teacher but also of the position of the student: the position of the information receiver is transformed into the position of the creator of one's own knowledge. It is possible to think and construct knowledge itself because both experience and knowledge are acquired in the course of real processes that produce thoughts and actions. Therefore, a specially organized process of multilateral communication in learning involves not only the teacher but also the activity of each subject of the educational process. Such communication involves not just allowing

students to say something, which is as well important, but also their knowledge and experience into the learning process. Traditionally, in most universities, when students try to bring their own knowledge or experience into the discussion of the material the teachers often leave it at the level of information and do not allow to change the structure of the subject of the discussion, disrupting the habitual communication model "teacher's opinion-student's supplement". The principles of multilateral communication are often violated because the students' knowledge only takes part in it as much as they complement the teaching process. Therefore, the following issues can be considered characteristic features of teaching, organized as a multilateral communication:

1. Students master specific knowledge and skills better if they are allowed to approach the object of knowledge through their own experience, independent intellectual activity, discussion of the results with other participants in the learning process.
2. Students learn better if the teacher actively supports the way of their learning. This works better when there is a field between them (students) and the subject of study that includes verbal and non-verbal actions.
3. Students learn better if the teacher, firstly, structures the subject for easy mastering, and, secondly, accepts and includes in the discussion the students' opinions which do not coincide with his own.

Consequently, the organization of interactive training most fully meets the specified requirements and characteristics, allows to switch from one-sided to multilateral communication, the interactive learning is the interaction of people involved in the educational process: the interaction between the teacher and students and between the students themselves. It is the inclusion of interactive teaching methods in the educational process of higher education that allows you to remove most of the problematic moments in the training of a modern specialist, contributes to the full achievement of the main goal of higher education. Together with professional competence, the formation of the student's intellectual autonomy with the presence of a developed social competence should be considered to be this goal.

In the literature it is difficult to find an article, a monograph or a textbook on the problems of teaching in higher education where it is not mentioned about interactive teaching methods and that they need to be widely introduced into the educational process. But it is difficult to find a consistent analysis of the methods of organizing interactive learning, the discovery of the mechanisms of the influence of such

methods on the individual cognitive process, the identification of factors that ensure the effectiveness of interactive teaching methods in the university and promote the development of communicative and other social skills. Therefore, it is necessary to give guidelines and recommendations to the teacher on the effective organization of each of the interactive teaching methods in order to improve the teacher's planning process.

Today's practice is marked not only by high technologies but also by the complexity of the requirements for the specialists who provide it. Modern requirements for the specialist give rise to new approaches to its preparation. It is possible to distinguish the following tendencies which are typical for the majority of pedagogical technologies in the world:

- special attention to the formation of practical professional and general skills while the theoretical part of the training is still relevant;
- a significant increase of the proportion of self-study (independent) academic work in the total amount of time allotted for training in a university;
- the transition to technology the focus of which is not only the formation of a specialist (no one refuses this), but also the personality of the learner. No wonder that among the requirements for a modern specialist his personal qualities occupy one of the leading places. And by personal qualities in this case we mean the specific qualities of a specialist in relation to work.

A special feature of modern changes is the understanding of professionalism, which is inextricably linked not only with purely professional knowledge and skills but also with the overall high level of mental development. The indicator of the general mental development of an individual is the intellectual value which is manifested as structuredness, categorizing, generality, flexibility, efficiency of knowledge necessary for making effective decisions; as intellectual initiative in the unity of cognitive and motivational components that determine the willingness of a specialist for independent intellectual activity; as self-organization and self-regulation [1, p. 26].

From the above one can single out the following objective and subjective factors for the successful implementation of pedagogical co-creation of the teacher and students in the pedagogical process. First of all, this is the optimal use of the dialogical forms of students' education; the introduction of elements of creative training in higher education; the problem of the educational process on the basis of creative teaching and professional tasks; the preferential application of pedagogical

means of indirect management, oriented to the optimal self-realization of the individual; the application of the group form of training; the creation of a psychological atmosphere of mutual respect and equality among the participants in the educational process; the formation of an appropriate motivation for co-creation among the partners in communication; the transformation of the teacher's psychological position: turning him from the information carrier to a consultant and the organizer of the learning process; the change of the students' orientation from "apprenticeship" to "partnership" [2, p. 87].

A decisive condition for the successful implementation of the joint work of the teacher and student is the organization of higher education on the basis of the dialogue. In the 21st century the dialogic culture becomes a new worldview of human and, accordingly, the basis for the achievement of a democratic model for the development of modern society. Education, aimed at creating conditions for the full development of the individual potential, is able to respond to the "challenges" of modern society, if it is probably based on a dialogic culture. The key in the understanding of the psychological basis of interactive methods is the concept of interaction which is better known as interpersonal or social interaction in Russian and Ukrainian psychological literature. Social interaction is considered to be an integral part of communication and joint activities which form an inseparable unity. People do not just communicate in the process of performing social functions, they always communicate in some activity, "about" it [1, p. 27]. Interactive communication provides an opportunity to attract people to actively seek solutions in a difficult situation, to solve problems where one person's efforts and knowledge may not be enough.

There are two common mistakes regarding "dialogical relations" without which a joint search for truth is practically impossible:

1) students think that they know something, i.e. have some truths; the truth is not born and is not in the head of an individual, it is born between people who are seeking the truth together;

2) people claim to have a ready-made truth; there is no ready-made truth, it is what is revealed through the relations among people.

Thus, the implementation of interactive teaching methods in the educational process allows to solve urgent needs in the training of a new type of specialist who is adequate to the requirements of modern society, a specialist who is able to seek a

solution in cooperation with colleagues using an active exchange of knowledge. Interactive methods can be divided into groups, where 1) one of the parties of communication is a teacher and 2) communication occurs between students [listeners] [3].

The first group includes lectures with included conversations, discussions, problem lectures, seminar-discussions, question-answer seminars, discussions with provocative questions, consultations (especially with distance learning), work through the site-course. To the second - conversations, discussions, round tables discussions, brainstorming, group solving of specific situations, business, role and didactic games, business simulations, projects and panel exercises. They can be used as separate methods and all together (for example, in a business game).

The analysis gives us grounds to say confidently that interactive methods play a leading role in the implementation of the task of the student-centered learning in higher education and in solving problems of quality teaching. They do not cancel and do not substitute the classical methods of training, but naturally and essentially complement them. In our opinion, such innovation of the educational process where old (approved) and new, (created with the requirement of time) teaching methods are naturally combined, allows to organize the current process of training of specialists in higher education effectively.

Interactive methods allow to fruitfully implement the educational and developmental functions of the pedagogical process. They contribute to the active formation of students' knowledge through independent work and collective discussion, develop and improve intellectual skills, productive and creative thinking and also allow to form professional social qualities of future specialists actively. For the teacher this training organization is an effective way of receiving a feedback, which contributes to the ability to effectively adjust the process of mastering knowledge and skills and to organize counselling for students. The complexity of the implementation of interactive teaching methods requires from the teacher to thoroughly understand the methods of their organization that is not only the general issues but each individual method and their integrated use. The teacher should not only be able to adapt these methods to his subject, his discipline, and also to be able to work for the overall result - the training of a modern professional who can realize himself in difficult socio-economic realities.

Thus, modern trends in the development of higher vocational education determine a fundamental change in the approaches to the organization of the educational process in higher education. The introduction of a system of multilevel education, the creation of a unified educational space, the implementation of a competence approach, necessitate a new approach to the organization of the training. High school teacher needs to perform not only the function of a translator (transmitter) of scientific knowledge, but to be able to choose the best strategy of teaching, to use modern educational technologies aimed at creating a creative atmosphere of the educational process. Changing of the vector of the educational process from a knowledge-based approach to a practice-oriented one to the results of the educational process has inevitably led to the formulation of the problem of technologies and teaching methods by which this practice-orientation will be achieved.

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Determination of the total nitrogen content and anatomical study of the leaves from plant species in urban and mountainous environments

Abstract: The comparative anatomical analysis of the major epidermal cells and the total nitrogen content in the leaves of four plant species (*Juglans regia* L., *Amorpha fruticosa* L., *Laburnum anagyroides* Medic., *Syringa vulgaris* L.) growing in urban and mountainous environments is accomplished. The determinate correlation dependence between two indexes is positive. The highest ecological plasticity, from the four studied species, was reported for *A. fruticosa*. For that same species was reported maximal contents and the minimal variation in total N mg/kg values. On the same indexes, as the least plastic concerning, is determinate *J. regia*. The medium level of plasticity sowed *L. anagyroides* and *S. vulgaris*.

Keywords: N, leaf anatomy, epidermis, plant steadiness, plant plasticity.

Introduction

The plant organs performing photosynthesis and gas-exchange, are most subject to the effect of the environment and their response is most obvious [1-5].

The epidermis as the outer layer of the assimilating organs, having a protective and regulatory function, provides information about the degree of resistance and plasticity of the plant species [6]. The smaller size of the major epidermal cells and their increased number are among the basic indicators about the resistance of the plant organism to the unfavourable environmental conditions [7-10]. On the other hand, according to Ilkun [11], analyzing the so-called "hidden disorders" expressed in reduced plant vitality, is of great importance. One of the most important characteristic in that case, is the result about the changes in the nitrogen, carbohydrate and phosphorus exchange [12,13]. According to Ninova and Dushkova [7], the polluted environment causes deviations in the metabolism of the nitrogen-

containing substances, slowing down the process of synthesis and accelerating the disintegration of proteins and the other nitrogen-containing compounds.

The aim of the present study was to make a comparative anatomical analysis of the major epidermal cells and to establish the total nitrogen content in the leaves of four plant species: *Juglans regia* L., *Amorpha fruticosa* L., *Laburnum anagyroides* Medic. *Syringa vulgaris* L., growing in urban and mountainous environments.

Material and methods

Equipment: The analysis of N (Total nitrogen) in manure samples was done with Kjeldahl digestion unit (VELP Scientifica UDK 142).

Samples: The method of comparative anatomy was used for the analysis [14]. Mature leaves from the periphery of the lower whorl of the tree crown of the four species – *J. regia*, *A. fruticosa*, *L. anagyroides* and *S. vulgaris*, were studied. The experimental variants included two locations – urban environment (Plovdiv city, Bulgaria - 42°09'42.42"N; 24°44'37.13"E; 176 m asl) and mountainous environment (Beklemeto area in the Central Balkan Mountain - 42°46'37"N; 24°36'51"E; 1650 m asl). Five plants of each species from the two locations were chosen and an average sample of 50 leaves collected from each plant was fixed in 70% ethanol. Semi-permanent microscope slides were prepared from the lower and the upper epidermis of the middle part of the leaf blade. The following characteristics were studied: shape and number of the basic adaxial and abaxial epidermal cells in 1 mm².

The samples for N-content determination were prepared according to standard methods. They were dried at 65°C in a ventilated oven and kept in dark polyethylene bottles.

Reagents and chemicals: The chemical analyses were conducted with analytical reagent-grade Merck and Fluka chemicals (0.1 N HCl; 20% H₃BO₃; H₂SO₄ (d=1.84); 50% NaOH; mixed indicator – 0.2% alcohol solution of methylene blue and 0.25% alcohol solution of methyl red; Cu catalyst tablets).

All glassware in contact with samples was soaked in HNO₃ solutions (1:1), left for at least 24 hours, and washed repeatedly with bidistilled water.

Total nitrogen determination: Total nitrogen content of samples was done according to the classic Kjeldahl method which has undergone modifications with regard to temperature and time of digestion, acid concentrations and oxidation catalysts. The principle of the method consists in digestion of organic matter and

reduction of nitrates with phenol-sulfuric or salicyl-sulfuric acid in the presence of catalysts, converting the nitrogen in samples to ammonium sulfate. The latter is digested by making the solution alkaline with addition of concentrated NaOH solution, and the liberated ammonia is distilled, reacts with boric acid of known concentration, and the excess is titrated with 0.2 N HCl. The analytical method has been modified and proposed from the manufacturer VELP Scientifics. The amount of samples, according to their N content varied from 0.25 g to 1 g.

Analysis procedure: the respective amount of sample is weighed. To it, 7 g K_2SO_4 , 5 mg Se, 7 ml $k.H_2SO_4$ and 5 ml H_2O_2 (hydrogen peroxide) are added. The thus prepared samples are placed in the digestion unit, previously set for 20-min digestion at 420 °C. After the digestion, the sample is distilled after being alkalisied with 35% NaOH. The distillate is collected into a flask with 4% boric acid, the ammonia excess is titrated with 2N HCl, containing Toshio's indicator. The used amounts of hydrochloric acid are used for calculation of total nitrogen content.

Statistica: SPSS (Statistical package for social sciences) for Windows and the method of descriptive statistics were used for statistical data processing. The variation coefficient (VC%) and the mean error (Sx%) were determined.

Results and Discussion

Shape of the epidermal cells: The degree of undulation of the anticlinal walls of the major epidermal cells was one of the diagnostic characteristics in studying the different responses of plants to the environmental changes in the location. The greater undulation of the anticlinal walls is an indicator of a higher susceptibility, i.e. a lower ecological plasticity [15], and, what is more, the response of the upper and the lower leaf epidermis is different.

The highest degree of undulation of the anticlinal cell walls of the upper epidermis was observed in walnut. According to the classification scale of Anelli [6] they refer to the curvilinear type with their zigzag folded cell walls (Fig. 1a; Fig. 2a). In the other three species the basic epidermal cells of the upper epidermis were broadly curved with folded cell walls (Fig. 1c, e, g; Fig. 2C, E, G). Significant differences in the shape of the adaxial epidermis cells of the plants from the separate locations were reported for false indigo bush, the cells of the plants from mountainous area having a higher degree of folding (Fig. 2C).

The shape of the major epidermal cells of the lower epidermis was polygonal in both mountainous and urban conditions and their anticlinal walls were strongly folded compared to the cells of the upper epidermis (Fig. 1b, d, f, h; Fig. 2B, D, F, H). The degree of folding of the abaxial epidermal cells was significantly higher in walnut and especially in false indigo bush under mountainous environmental conditions (Fig. 2B, D).

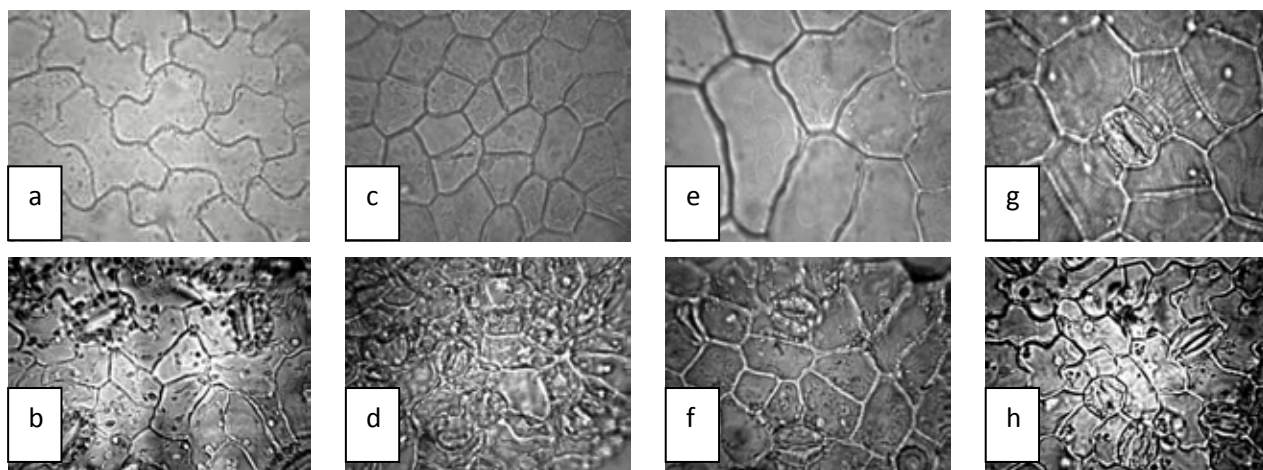


Fig. 1. Structure of the adaxial (a,c,e,g) and abaxial (b,d,f,h) epidermis of the species in urban area

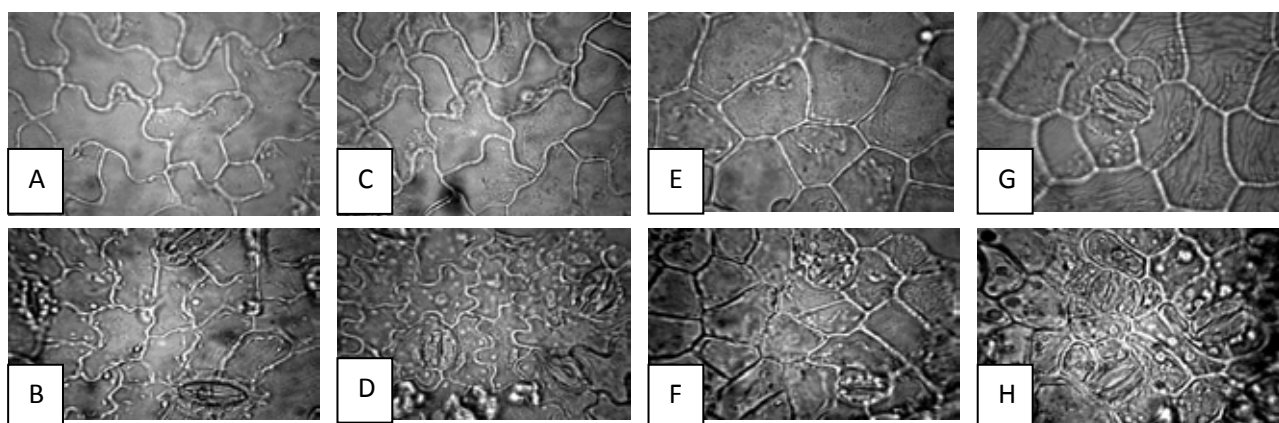


Fig. 2. Structure of the adaxial (A,C,E,G) and abaxial (B,D,F,H) epidermis of the species in mountainous area

A,a B,b – *Juglans regia* L.; C,c D,d– *Amorpha fruticosa* L.; E,e F,f – *Laburnum anagyroides* Medic.; G,g H,h – *Syringa vulgaris* L.

Number of the epidermal cells in 1 mm²: Changes in the number of the epidermal cells in 1 mm², and in their size, respectively, as a result of the environmental factors, are an indicator of their adaptability according to a number of

authors [6,16]. The small cell size is an indicator of xeromorphy, i.e. of plant plasticity [17,18].

S. vulgaris had the largest in size and the smallest in number upper epidermal cells in both studied locations (776 in average in mountainous environment, 781.9 in average in urban, respectively). Those values showed the lowest degree of changes in the number of cells depending on the environmental conditions, i.e. according to that characteristic the species demonstrated the lowest ecological plasticity (Table 1).

The smallest size and the largest number of cells were reported in the adaxial epidermis in false indigo bush from urban region (2090 in average). That determined the species as the most xeromorphic by that characteristic and the reported minimal difference in the mean values in the plants from both locations determined it as the species with the highest plasticity.

Concerning the other two species, walnut exhibited a more obvious response and the number of the epidermal cells in the upper epidermis increased significantly in urban region (799.4 for mountainous area vs. 1173.7 for urban, respectively).

Referring to the abaxial epidermis, the highest value was reported in *A. fruticosa* for urban region (2635.1), followed by *S. vulgaris* for mountainous environment (1639.8).

The maximal number of cells in the abaxial and adaxial epidermis of false indigo bush and the biggest difference caused by the growing location determined the species as the most adaptable concerning that characteristic, despite the fact that the minimal value was reported for that same species growing in mountainous area (1480.1 in average).

Data showed an obvious tendency to an increase in the number of cells in both the lower and upper epidermis under urban conditions. Exceptions were reported for the lower epidermis of common lilac and walnut, the average value for the region of mountainous environment being 1639.8 and 1735 and for urban region – 1582.5 and 1504.7, respectively. The low degree of variation and the deviation from the general tendency determined both species as the least plastic concerning that characteristic.

**Table 1. The number of the epidermal cells in 1 mm² at the four studied species
UE - Upper epidermis; LE - Lower epidermis**

		Urban environments min(x±Sx)max	Sx%	VC%
<i>J. regia</i>	UE	946.9(1173.7±14.7)1298.2	1.2	6.8
	LE	1596.5(1735.1±19.2)1982.5	1.1	6
<i>L.anagyroides</i>	UE	982.5(1227.5±19.6)1350.9	1.5	8.7
	LE	1754.4(2161.9±44)2578.9	2	11.1
<i>S. vulgaris</i>	UE	666.7(781.9±16.4)947.4	2	11.5
	LE	1315.8(1582.5±32.1)2105.3	2	11.1
<i>A.fruticosa</i>	UE	1719.3(2090±32.8)2421.1	1.5	8.6
	LE	1929.8(2635.1±118.1)3122.8	4.4	14.1
		Mountainous environments		
<i>J. regia</i>	UE	701.8(799.4±12.4)982.5	1.5	8.5
	LE	1385.9(1504.7±21.62)1912.3	1.4	7.9
<i>L.anagyroides</i>	UE	877.2(1019.3±9.7)1122.8	0.9	5.2
	LE	1456.1(1609.9±18.3)1842.1	1.1	6.2
<i>S. vulgaris</i>	UE	596.5(776±16.3)929.8	2	11.4
	LE	1491.2(1639.8±18.6)1947.4	1.1	6.2
<i>A. fruticosa</i>	UE	1175.4(1424.6±23.3)1701.8	1.6	8.9
	LE	1263.2(1480.1±26.7)1719.3	1.8	8.4

N-content, mg/kg: The leaves of false indigo bush from both habitats characterized with the highest content of N. (Table 2). The minimum registered values for walnut and lilac in urban region were: 22346.87 mg/kg and 22756.41 mg/kg, respectively. Similar results were obtained by Ninova and Dushkova [7]. They established lowest protein contents in highly sensitive species, growing in regions with highest air pollution.

According to the study of Reich and Oleksyn [19], N-content in plants from regions with warm climate and low rainfalls was decreased. Similar results regarding increased N-content in plants from high – mountain regions were obtained by Heerwaarden et al. [20].

The variations of the average N-contents with respect to the four studied species in both studied regions were the highest for *J. regia*. For urban areas the

observed mean value was 22346.87 mg/kg, while for mountain areas it increased to 32856.83 mg/kg. The latter determines the studied species as the most sensitive according to this index, which corresponds to its high sensitivity towards epidermal parameters.

Table 2. Total N-content, mg/kg in the leaves at the four studied species

Species - environment	N, mg/kg		
	min	x	max
<i>J. regia</i> - urban	22451,55	22346,87	22734,86
<i>J. regia</i> - mountainous	32968,67	32856,83	32645,82
<i>L. anagyroides</i> - urban	26538,57	26107,36	26726,24
<i>L. anagyroides</i> - mountainous	29848,21	29368,65	29942,62
<i>S. vulgaris</i> – urban	22801,23	22756,41	23156,74
<i>S. vulgaris</i> – mountainous	26480,98	26211,83	26754,57
<i>A. fruticosa</i> - urban	33655,93	33285,74	36785,53
<i>A. fruticosa</i> – mountainous	34371,89	34295,67	35475,21

The detected minimal variation in N-content for *A. fruticosa* (33285.74 mg/kg urban and 4295.67 mg/kg mountainous environment) corresponds to the clearly registered value of resistance of the species towards epidermal syndromes. Regarding the other two species, higher N-content determined in the leaves of golden rain. However the reduction in N-content was more intense lilac (26211.83 mg/kg mountainous and 22756.41 mg/kg urban environment).

N-content and the number of the basic epidermal cells revealed positive correlation. The determined correlation coefficient for cells from the upper eider epiderm was significantly higher as compared to that for the laver layer, + 0.48 and + 0.13, respectively (Table 3).

Table 3. Correlation coefficient (r) reported between the total N-content, mg/kg and the number of the major epidermal cells in 1 mm²

	Number of the major epidermal cells in 1 mm ²	
	Upper epidermis	Lower epidermis
N, mg/kg	+0.48	+0.13

Conclusions

In the present study, the highest ecological plasticity according to the results about the major epidermal cells was reported for *A. fruticosa*. Common walnut and lilac proved to be the least xeromorphic referring to both the shape of the major epidermal cells, on the one hand, and, their number and size, on the other. The response of *L. anagyroides* was of interest in the present study, however there is not any information in literature. Concerning the epidermal cells and the chemical characteristics of nitrogen, the species showed a medium level of plasticity. An increased N-content in the plants growing in mountain conditions was observed in all the studied variants. The obvious susceptibility of walnut was expressed in a decreased N-content and in the greatest degree of variation of the characteristic in mountain and in urban environmental conditions.

The high plasticity of false indigo bush correlated with the reported maximal N values and the minimal difference established between both environmental locations.

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Cumulative potential and response of leaf epidermal traits in four widespread urban and mountainous plants to the commonest airborne heavy metals (Cu, Fe, Zn, Mn, Cr)

Abstract: The purpose of the present study was to evaluate the cumulative potential and response of leaf epidermal traits (number of the epidermal cells - NEC; number of stomata - NS; length of stomata - LS; width of stomata - WS; upper epidermis - u.e.; lower epidermis - l.e) in four widespread urban and mountainous plant species: *Syringa vulgaris* L., *Amorpha fruticosa* L., *Laburnum anagyroides* Medic. and *Juglans regia* L., to the commonest heavy metals – Cu, Fe, Zn, Mn and Cr. Concentrations of heavy metals were determined using an atomic absorption spectrophotometer (PerkinElmer 800). The peak cumulative values of Fe, Zn and Mn were established in *S.vulgaris*, of Fe and Cr – in *L. anagyroides*, and of Cu – in *A. fruticosa*. With respect to Mn and Cr, *S. vulgaris* exhibited the greatest variability between the two habitats, as did *A. fruticosa* for Cu and Fe and *J. regia* for Zn. The average content of heavy metals was higher in mountainous plants. Correlation analysis demonstrated a strong positive relationship between number of stomata and Cu content (urban environment), number of stomata and Zn and number of stomata and Mn (mountainous environment). The number of stomata was identified as a primary parameter for evaluation of effects of heavy metals on leaf anatomy in all four studied plant species.

Keywords: biomonitoring, plants indicator, pollution, environment.

Introduction

The utilization of leaves of different shrubs and especially trees as bioindicators of air pollution with heavy metals gains increasing importance [1-5].

Every plant species exhibits a different tolerance to a specific heavy metal or heavy metal group. The reports of many researchers provide evidence that it is dependent on the anatomo-morphological features of leaves – epidermal cells number and size [6,7], structure of the mesophyll and cuticle [8,9], presence and density of indumentum [10,11] etc. On the other hand, the biological activity of the heavy metal is also important [12].

The ability of plants to accumulate airborne heavy metals and resulting changes in the anatomy and morphology of leaves have been subject to many studies. *Fraxinus excelsior* L. was used as bioindicator of Pb, Cd, Cu, Zn and Cr [13], *Quercus ilex* L. and *Olea europaea* L. – for biomonitoring of Pb, Ni, V, Cr and Fe [14]. Defew et al. [15] analyse the content of Mn, Zn, Cu, Pb, Cr, Fe and Cd in the leaves of *Avicennia marina* (Forssk.) Vierh and *Laguncularia racemosa* (L.) C. F. Gaertn. The effects of soil and air pollution with heavy metals (Fe, Zn, Pb, Cu, Mn and Cd) were investigated in *Button mangrove* L. by Davami and Gholami [16], Marbaniang et al. [17] tested *Camelia sinensis* (L.) Kuntze as indicator of Cr, Mn, Fe, Co, Cu, Zn and Cd. Also, the leaves of *Morus alba* L., *Platanus acerifolia* and *Cupressus sempervirens* were used as biomonitors of air pollution with Pb, Zn, Cd, Mn, Fe and Cu [5,18].

The purpose of the present study was to evaluate the cumulative potential and the response of leaf epidermal traits (number of the epidermal cells - NEC; number of stomata - NS; length of stomata - LS; width of stomata - WS; upper epidermis - u.e.; lower epidermis - l.e) in four widespread urban and mountainous plant species: *Syringa vulgaris* L., *Amorpha fruticosa* L., *Laburnum anagyroides* Medic. and *Juglans regia* L., to the commonest heavy metals – Cu, Fe, Zn, Mn and Cr.

Material and methods

Samples: The method of comparative anatomy was used for the analysis [19]. Mature leaves from the periphery of the lower whorl of the tree crown of the four species – *J. regia*, *A. fruticosa*, *L. anagyroides* and *S. vulgaris* were studied. The experimental variants included two locations – urban environment (Plovdiv city - Bulgaria - 42°9'42.42"N; 24°44'37.13"E; 176 m asl) and mountainous environment (Beklemeto area in the Balkan mountain - 42°46'37"N; 24°36'51"E; 1650 m asl). Five plants of each species from the two locations were chosen and an average sample of 50 leaves collected from each plant was fixed in 70% ethanol. Semi-permanent

microscopic slides were prepared from the lower and the upper epidermis of the middle part of the leaf blade. The following characteristics were studied: shape and number of the basic adaxial and abaxial epidermal cells in 1 mm² and width, length and number of stomata per mm² of abaxial epidermis.

Reagents: The reagents are qualified "p.a". Stock standard solution (Merk, Germany) with a concentration of 1000 mg/l for the determination of Cu, Fe, Zn, Mn and Cr was applied. In all procedures double-distilled water was used.

Mineralization of the samples: The mineralization of the samples was carried out according to EPA Method 3052 procedure (Method EPA 3052, 1996). 1g sample to the nearest 0.001 g in PTFE vessels was weighted. HNO₃, HF, HCl and H₂O₂, were added using a microwave system Multiwave 3000. The maximum power was 1400 W, and the maximum pressure in Teflon vessels - 40 bar .

Determination of heavy metals in samples: In the determination of heavy metals in the samples Atomno absorption spectrometer "AAAnalyst 800 with graphite furnace HGA" Company "Perkin Elmer", at wavelengths: Cu - 324.8 nm, Fe - 248.3 nm, Zn - 213.9 nm, Mn - 279.5 nm and Cr - 357.9 nm was used.

Statistical analyses: The statistical analysis of data was done with SPSS (Statistical package for social sciences) for Windows. The results for heavy metal contents in plant species were submitted to correlation analysis, determination of measures of dispersion, cluster analysis.

Results and Discussion

1. Analysis of plant responses to heavy metal accumulation in the different environments. The response of the four studied plant species to heavy metal accumulation in urban and mountainous environments was different (Table 1). Kuklina and Shelepova [20], noticed that the identification of plant species capable to accumulate certain trace elements is a complex process depending both on the specific cumulative chemical apparatus of plants and on biogeochemical conditions of the habitat. According to Karabourniotis et al. [21] the various cumulative potential of plants with respect to heavy metals depends on leaf morphology – roughness, leaf hairs etc.

Table 1. Variation of the heavy metal contents and epidermal indexes at mountainous in comparison with the urban environments (%). NEC – number of the epidermal cells; NS – number of stomata; LS – length of stomata; WS – width of stomata; u.e. - upper epidermis; l.e. – lower epidermis

	<i>S. vulgaris</i>	<i>A. fruticosa</i>	<i>L. anagyroides</i>	<i>J. regia</i>
Cu	-34.4	+3.0	+36.0	+12.0
Fe	-75.9	+426.9	+88.6	-48.9
Zn	+30.5	-24.5	-1.9	-29.8
Mn	+561.2	-27.2	+278.6	+148.3
Cr	-62.5	-9.6	-30.9	+2.8
NEC u.e	-0.8	-31.8	-16.9	-31.9
NEC l.e.	+3.6	+39.0	-25.5	-13.2
NS	-41.6	-50.6	-23.6	+1.4
LS	-4.9	-7.2	-4.1	+1.9
WS	-1.1	+10.9	+1.8	+7.7

The content of Cu, Fe and Cr in *S. vulgaris* leaves decreased in the mountainous environment with minimum detected values for Cu and Cr of 8.2 mg kg⁻¹ and 0.3 mg kg⁻¹, respectively (Fig. 1). The content of Zn and especially that of Mn increased several times, with peak values for the two metals in *S. vulgaris* from both environments: Zn – 59.55 mg kg⁻¹ (urban) and 77.7 mg kg⁻¹ (mountainous); Mn – 50.79 mg kg⁻¹ (urban) and 335.85 mg kg⁻¹ (mountainous); (Fig. 1). A specific feature of the plant species was the lower leaf Cu content and the higher Zn content in mountainous conditions. Sameera et al. [22] have used lilac for bio adsorption of iron with maximum recorded leaf Fe levels of 155.42 mg kg⁻¹. With respect to epidermal traits, higher numerical values were established in the urban environment except for the lower epidermis NEC. The variation of epidermal traits was around or under the average one (Table 1).

A. fruticosa in mountainous environment accumulated more Cu and Fe with a registered peak of Cu of 12.52 mg kg⁻¹. The species demonstrated most pronounced differences in Fe content, which was low in the urban environment (26.56 mg kg⁻¹), while in the mountainous habitat it increased 5 times and attained 139.95 mg kg⁻¹ (Fig. 1). The cumulative potential of the species with respect to Zn and Mn was minimum for both environments: Zn 35.51 mg kg⁻¹ (urban) and 26.8 mg kg⁻¹

(mountainous); Mn 38.49 mg kg⁻¹ (urban) and 28.02 mg kg⁻¹ mountainous (Fig. 1). A species-specific feature was the reduced manganese content in the mountainous environment (Table 1). Our results were rather different to those of Kuklina and Shelepova [20], which monitored the variations in trace element content in the leaves of *A. fruticosa* from various habitats and reported most substantial alterations for Cr (4.8 times) and Mn (4.5 times), for Cu (1.9 times), Zn (2.2 times) and Fe (2.1 times). The change in epidermal traits of the indigo bush was similar to that observed in lilac, but the heavy metal variability was the highest among the four studied plant species, hence this was the most ecologically plastic species.

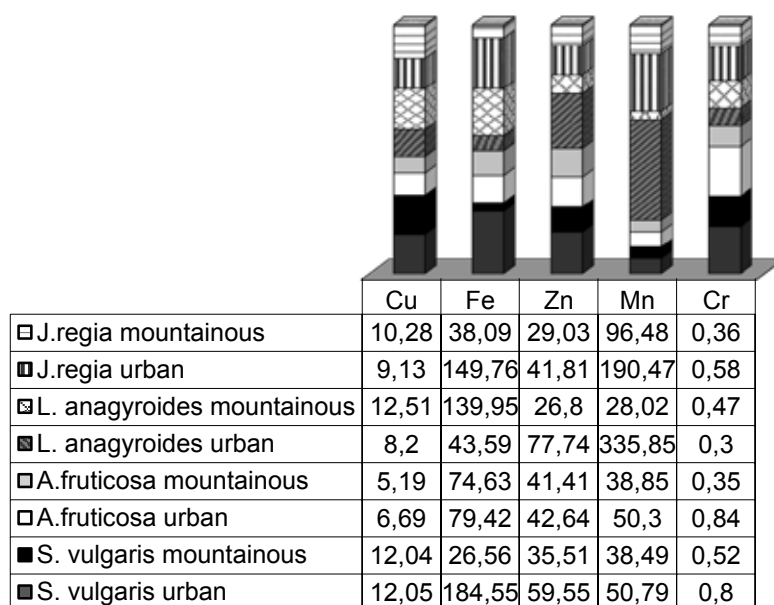


Fig. 1. The average value of the heavy metal concentration (mg kg⁻¹) in the leaf of the four studied species at the urban and mountainous environments

L. anagyroides from the urban environment accumulated more Zn and Cr in its leaves (Fig. 1). The variation in leaf Cu content of the species was the strongest, and considerable with regard to Fe and Mn (Table 1). In the mountainous environment Fe content attained a peak of 149.76 mg kg⁻¹ (Fig. 1). Cr showed peaks of 0.84 mg kg⁻¹ (urban) and 0.58 mg kg⁻¹ (mountainous). The species is used as bio monitor of accumulation of Cr and other heavy metals in the family Fabaceae [23]. The author stated that in general, the species within this family were able to cumulate a larger amount of Mn and Ni than plants from other families. With regard to epidermal traits the species exhibited lower values in mountainous conditions except for the stomata length. The obtained values had a lower variability than those in the lilac and *A. fruticosa* (Table 1).

J. regia accumulated more Cu, Mn and Cr in the mountainous environment. Increased content of Fe, Mn and Zn in non-polluted habitats is reported by Kalkisim et al. [24]. The species from the mountainous environment had minimum values of Cu and Cr which distinguished it from the other species. The number of size of stomata of *J. regia* leaves increased in the urban environment.

The correlation matrix between leaf epidermal traits and heavy metal content in leaves in both environments showed a statistically significant strong positive relationship between Cu content and number of stomata in the urban environment and between Zn and Mn the number of stomata in mountainous environment (Table 2).

Table 2. Correlation between chemical elements and epidermal indexes.
NEC – number of the epidermal cells; NS – number of stomata; LS – length of stomata; WS – width of stomata; u.e. - upper epidermis; l.e. – lower epidermis

	Cu	Fe	Zn	Mn	Cr
Urban					
NEC u.e	0.24	-0.87	-0.84	-0.68	-0.4
NEC l.e.	0.25	-0.82	-0.78	-0.41	-0.09
NS	0.96*	0.42	0.47	0.37	0.52
WS	-0.43	0.73	0.68	0.41	0.09
LS	-0.29	0.58	0.54	-0.00	-0.31
Mountainous					
NEC u.e	0.83	0.79	-0.56	-0.68	0.56
NEC l.e.	-0.92	-0.13	0.86	0.94	-0.07
NS	-0.88	-0.41	0.98*	0.96*	-0.44
WS	0.001	-0.84	-0.13	-0.12	-0.69
LS	-0.11	-0.90	-0.01	-0.00	-0.76

*Correlation is significant at the 0.01 level.

According to a number of studies, the increase in number of stomata is one of the primary parameters of species resistance and eco plasticity [6,7]. In our research, higher number of stomata was established in the urban environment with the exception of *J. regia* (Table 1). The species *S. vulgaris* did not comply with the observed correlation as in the mountainous environment it had fewer stomata at the background of lower Cu и Zn contents (Table 1). A similar exception constituted *A. fruticosa* with regard to Mn, which decreased proportionally to number of stomata in

the mountainous environment (Table 1). The most probable reason for observed deviations from the tendency was the integral interaction among heavy metals and the specific features of studied plant species [20].

The dispersion analysis showed that the factor with highest influence on heavy metal values in studied plants was the heavy metal element itself (31%), the environment at a lesser extent (1.4%), and the combination of both (8.3%). The effects of other factors were below the level of statistical significance (Table 3).

Table 3. Analysis of variance of the studied indexes

Source of variation	Sum of Square	Df	Mean Square	Sig of F	Degree of influence %
Environments	4056.2	1	4056.3	0.015	17.0
Elements	88728.8	6	14788.1	0.001	31.0
Species	10670.8	3	3556.9	0.200	3.0
Environments x Elements	23853.3	6	3975.5	0.045	8.3
Elements X Species	26246.1	18	1458.1	0.900	9.0
Environments X Species	1086.3	48	3829.8	0.960	0.3

The grouping of species depending on heavy metal contents by means of hierarchical clustering showed differences between the two environments. *L. Anagyroides* и *J. regia* were the most similar species for the urban environment. In both, heavy metal content varied around the average values. *A. fruticosa* formed an independent cluster as it showed minimum values for Zn and Mn. The peak values for all heavy metals except for chromium were the reason for the clear differentiation of *S. vulgaris* in an independent cluster (Fig. 2).

In the mountainous environment, *A. fruticosa* and *J. regia* exhibited the closest heavy metal contents. To this group belonged also *L. anagyroides* although with a high extent of deviation. Again, the lilac showed the highest variability due to its highest Fe, Zn, Mn, Ni cumulative potential (Fig. 3).

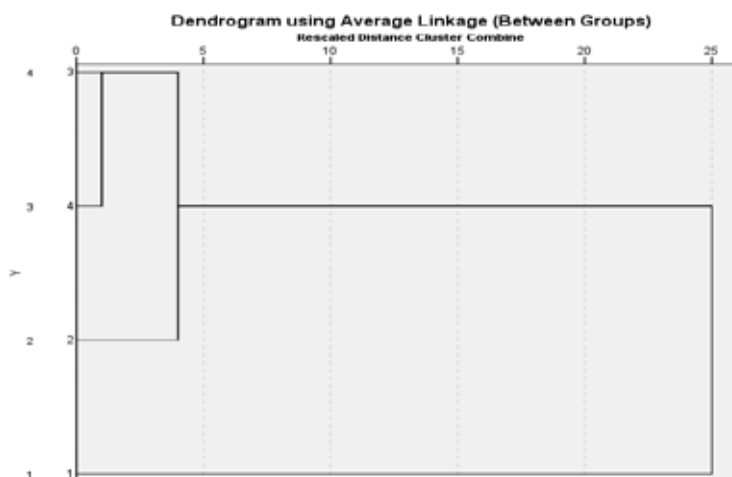


Fig. 2. Cluster analysis of the heavy metal content in the leaf of the four studied species in the urban environment. 1 - *S. vulgaris*; 2 - *A. fruticosa*; 3 - *L. anagyroides*; 4 - *J. regia*

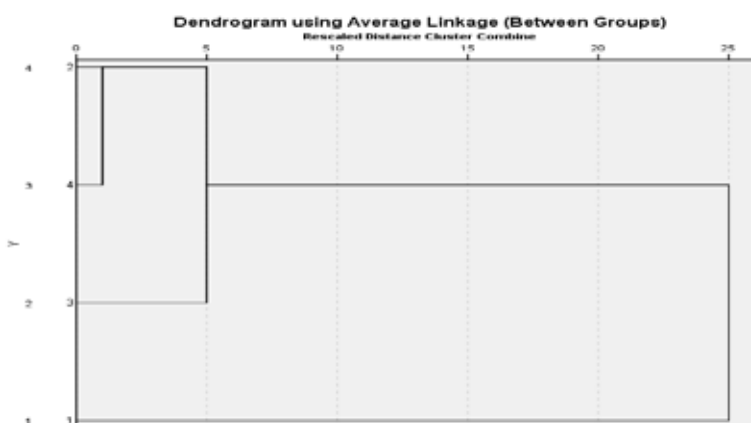


Fig. 3. Cluster analysis of the heavy metal content in the leaf of the four study species in the mountainous environment. 1 - *S. vulgaris*; 2 - *A. fruticosa*; 3 - *L. anagyroides*; 4 - *J. regia*

II. Analysis of heavy metals interactions. The average concentrations of heavy metals increased in the mountainous habitat except for those of zinc (Table 4). statistically significant differences between the two environments were established for Mn and Cr levels.

Aksoy and Demirezen [13] reported considerably higher Cu and Zn content in the leaves of *Fraxinus exelsior* in urban environment while the experiments of Baldantoni et al. [14] detected increased Zn and sharply reduced Mn concentrations in the leaves of *Quercus ilex* L. in slightly polluted environment. The differences

observed for Fe, Cr and Cu were not significant, but their content in the urban environment was higher.

Table 4. Comparison of the means of heavy metal concentration (mg kg⁻¹) in different environments

	Urban	Mountainous	LSD
Cu	8.99 ^b	10.03 ^b	1.1
Fe	91.29 ^a	92.84 ^{a,b}	27.5
Zn	44.77 ^b	43.84 ^b	7.03
Mn	44.6 ^b	162.7 ^a	35.5
Cr	0.62 ^b	0.42 ^b	0.06

The difference is significant at the t 0.05

Substantially increased concentrations of Mn: by 30 to 55% were demonstrated by Marbaniang et al.[17] in the leaves of *Camellia sinensis* from polluted areas. The differences between studied areas with respect to the other analysed trace elements (Cr, Fe, Co, Cu, Zn, Cd) were up to 30%.

Davami and Gholami [16] reported increased Fe, Mn, Cd and Pb content in *Botton mangrove* leaves in industrial areas; the differences about Cu and Zn were irrelevant.

Conclusions

According to the present study, the number of stomata was identified as the primary parameter for evaluation of effects of environmental heavy metals on leaf anatomy of the four studied plants, due to their strong positive relationship with Cu, Zn and Mn content. The average heavy metal concentrations, except for those of Zn, increased in the mountainous environment. There were statistically significant differences in Mn and Cr levels in leaves between both environments.

In both studied environments, the variability in Cu and Fe contents was the higher. According to leaf anatomic studies, *Amorpha fruticosa* L. exhibited the highest extent of xeromorphism.

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Tendencies and main directions of development of the world market of bioproducts

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Тенденции и основные направления развития мирового рынка биопродуктов

Аннотация: Уже четыре десятилетия, как цивилизованный мир перешел на новую культуру пищевых продуктов: еда, насыщенная химическими веществами, их отталкивает, и предпочтение отдается органическим продуктам. Анализ мирового рынка биопродукции показывает, что последний из года в год демонстрирует темпы стабильного развития, о чем свидетельствует также увеличение мирового потребительского спроса на данном рынке, следовательно, очевидно, что последний станет продуктом питания будущего поколения и будет постоянно расти.

Ключевые слова: биопродукты, органические продукты, рынок биопродуктов, продуктов питания нового поколения.

¹Рынок биопродуктов на данный момент является одним из быстро развивающихся рынков, объемы которого продолжают расти с каждым годом.

Уже четыре десятилетия, как цивилизованный мир перешел на новую культуру продуктов питания: еда, насыщенная химическими веществами, их отталкивает, и предпочтение отдается органическим продуктам. Если 10 лет назад всего лишь 1% человечества употреблял органическую пищу, то сейчас этот показатель превышает в 10 раз, при этом Европа и Северная Америка потребляют 97% производимых в мире органических пищевых продуктов.

¹<http://jurnal.org/articles/2014/ekon9.html>, 2016.

²Анализ мирового рынка органических продуктов питания показывает, что по состоянию на 2016 год 43.7 млн га территории используется 2,3 млн производителями для производства органической пищи. На данный момент общий объем всемирного рынка органических продуктов достигает 72 млрд \$. При этом на рынке органических продуктов основная доля потребления приходится на США и Европу.



Рисунок 1. Объемы продаж рынка органических продуктов по отдельным странам в 2016 г., млн евро.

При этом в производстве и потреблении органических продуктов разные страны выделяются большим потреблением отдельных видов продуктов. Например, Бельгия, Нидерланды, Финляндия и Франция выделяются объемами потребления органических мясопродуктов, в Северной Европе наибольшее потребление имеют органические молочные продукты, Швейцария, Швеция и Германия опережают по производству и потреблению органических хлебопродуктов.

Анализ мирового рынка биопродукции показывает, что последний из года в год демонстрирует темпы стабильного развития, о чем свидетельствует также увеличение мирового потребительского спроса на данном рынке (по данным IFOAM, в 2016 г. объемы этого рынка превысили порог 72 млрд долларов США, что почти в десятки раз превышает темпы продаж на этом рынке в 1999 г.).³ По прогнозам международной исследовательской компании Grand View Research, общий объем рынка биопродуктов с 2016 по 2020 гг. ежегодно будет расти в

² N. Pashkevich, <<World market of organic foodstuffs: state, tendencies of development>>, 2016.

³ <http://look.bio/post/show/311>.

среднем на 15.5% и в 2020 году достигнет 212 млрд \$. Как свидетельствуют эксперты этой отрасли, данный рынок непрерывно растет и конкуренция еще более обостряется. Хотя на сегодняшний день половина рынка биопродукции приходится на долю США, а 44% – Европы, тем не менее в последующие годы прогнозируется резкий рост последнего в странах тихоокеанского региона. На данный момент 172 страны занимаются производством биопродуктов, 82 из которых имеют четкое законодательное поле относительно последнего, а 16 стран находится на стадии его разработки, в числе которых и Россия.

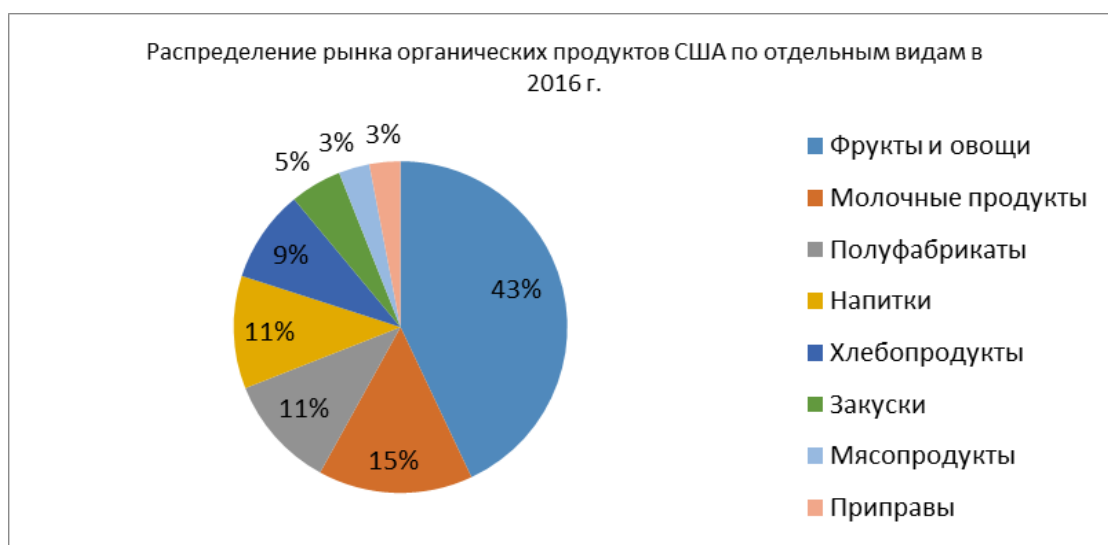


Рисунок 2. Распределение рынка органических продуктов США по отдельным видам в 2016 г.

⁴Более 10% мировых пахотных земель используются для производства биопродукции. Здесь США имеет 24.3 млрд евро объема оборота, Германия – 7.6 млрд евро, Франция – 4.4 млрд евро, Китай – 2.4 млрд евро. Однако первое место по объемам потребления на душу населения занимают Швейцария и Дания с показателями 210 млрд евро и 163 млрд евро соответственно.

Вышесказанное свидетельствует о том, что биопродукты – продукты питания поколения будущего и инвестиции в данную отрасль и соответствующие мероприятия должны осуществляться не только развитыми странами, но и развивающимися, где наиболее распространена проблема продовольственной обеспеченности.

⁴<http://orgprints.org/28077/7/28077.pdf>.

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Kyrylo Seletskyy in history of pre-school education of Ukraine

Abstract: The article deals with issues not researched comprehensively in Ukrainian pre-school pedagogy, namely those of place and role of Kyrylo Seletskyy in the process of development of pre-school social education in Western Ukraine. It shows his contribution as an organizer of first Ukrainian pre-school institutions on the edge of the XIX and the XX centuries, as an author of educational-methodological works and works of art that were used in educational-instructional process, as a popularizer of foreign pedagogic experience.

Keywords: pre-school educational institution (“zakhoronka”, kindergarten), social education, nuns’ community, village of Zhuzhel.

Democratic processes in independent Ukraine have opened broad possibilities for reconsidering historical experience in various areas of social life, including pre-school pedagogy. Thanks to novelty research works of such researchers as Z. Nahachevska, M. Lysenko, S. Ivakh, H. Reho and others names of many significant personalities have been returned to history of pre-school pedagogy, those of people who in the second half of the XIX century and the early XX century efficiently worked as popularizers and organizers of pre-school social education. These are Nataliya Kobrynska and Sofiya Rusova, Mariya Biletska and Kostiantyna Malytska, Sebastian-Willibald Schiesler and Lev Yasinchuk. Besides them, there is Kyrylo Seletskyy whose work as an organizer of first Ukrainian pre-school institutions (“zakhoronkas”) in Western Ukraine deserves attention of modern researchers.

Kyrylo Seletskyy (1835-1918) was a Greek Catholic priest, Galician Ukrainian church and public person, writer and publicist. He was born on April 29th, 1835 in the village of Pidbuzh near Sambir in Lviv region, in the family of a teacher Mykhailo Seletskyy. He studied in Sambir Gymnasia, Lviv University and Peremyshl Spiritual Seminary. In 1860, was awarded a priest’s title by Peremyshl bishop, the would-be Galician metropolite H. Yakhymovych. From 1874 till his death he worked as a

paroch in the village of Zhuzhel and conjoint with its parish village of Tseblevo (now Sokalsky district in Lviv region) [5].

His church service Rev. Kyrylo Seletsky combined with active work in various areas of social life – he organized sobriety communities and lending offices, reading lounges and “Prosvita” groups, as well as supplied articles to main Galician newspapers and magazines, published fictional prose and poetic works with moral-ethical and national-cultural content. Still the most remarkable achievement of Rev. Kyrylo Seletsky was organization of active women’s Greek Catholic nuns’ communities – Virgin Mary Serving Sisters and Virgin Mary Joseph Espoused Sisters, who handled organization and management of first Ukrainian pre-school educational institutions in the late XIX – early XX centuries [2].

The issue of organization in Galicia and Bukovyna of Ukrainian institutions of communal care and education for pre-school children came into focus with organization of Ukrainian women’s movement headed by writer and public person Nataliya Kobrynska (1865-1920). In 1884, she founded first Ukrainian women’s organization “Society of Rus Women” in Stanislav (now Ivano-Frankivsk) and in 1891 was the first to bring up a question of organization of first Ukrainian pre-school educational institutions in a women’s assembly in Stryy [3].

Topicality of the problem of national pre-school educational institutions was stipulated by active spreading in Galicia of Polish-speaking pre-school educational institutions. According to official statistics of the year 1890, in Galicia worked 58 pre-school educational institutions (kindergartens and “zakhoronkas”), but in fact their number was quite higher. There was not even one Ukrainian institution among them, though. Attending Polish-speaking pre-school educational institutions by Ukrainian children was becoming a part of polonization processes and could not remain unnoticed by Ukrainian public circles [3].

Call by N. Kobrynska of necessity to organize Ukrainian pre-school education was in general positively seen by Galician society, though it faced difficulty of managing such business, namely connected with material expenses. But Nataliya Kobrynska was supported by representatives of Greek Catholic church – Rev. Kyrylo Seletsky and monk Yeremiya Lomnytsky. In 1892, they organized assembly of Virgin Mary Serving Sisters and assigned them a high-priority task of managing pre-school educational institutions (“zakhoronkas”).

The basis of the statute of Virgin Mary Serving Sisters of Byzantine rite prepared by Kyrylo Seletsky and approved by Metropolitan Ordinariate on June 6th, 1892 were ground documents of Serving Sisters of Latin rite, who had been working with pre-school children in Galicia for over 30 years [2]. They organized a monastery and a “zakhoronka” near the village of Zhuzhel, but nuns found it difficult to get along with local population and had to relocate. Still on May 15th, 1893 in the village of Zhuzhel (now Zhuzheliany) in Sokil district under the aegis of Greek Catholic Serving Sisters the first Ukrainian “zakhoronka” in Galicia was opened.

Rev. Kyrylo Seletsky himself informed Galician community of the opening of the educational institution through “Pastor” paper, having stated that management of the newly-opened educational institution had been assigned to a Serving Sister, “who independently acquainted with managing educational process in a Lviv “zakhoronka” [1]. The first pre-school teacher became Arseniya Hordashevskaya – sister of the head of Josephite community. Sister A. Hordashevskaya had proper pedagogical education and practical experience in managing “zakhoronkas” which she received from Roman Catholic Felician Sisters [3].

A new day in the first Ukrainian “zakhoronka” started with a prayer, afterwards children played and then studied. Serving Sisters taught them prayers and catechism, read fairytales to them, taught them poems and songs, as well as calculus and reading. In the evening children were brought to the church and after the service they were picked up by their parents.

In June 1894, several Serving Sisters moved from the village of Zhuzhel to the village of Samoluskiv (now Samoluskivtsi) near Hysiatyn (Ternopil region), where a new “zakhoronka” arose thanks to donation of a wealthy peasant Stepan Kormylo. The third educational institution of Serving Sisters was founded in 1895 in the village of Tsyhany (now Borshchahiv district in Ternopil region) by Duchess Sapizhna. Very soon this process spread to other districts in Galicia [1].

Kyrylo Seletsky was recognized a procurator (chief) of Serving Sisters community, and spiritual accompaniment was provided by Yeremiya Lomnytsky from Basilian Fathers. Certain dualism in management, efforts of Ye. Lomnytsky to monopolize management led to confrontation. Not to make the conflict deeper, Kyrylo Seletsky decided to resign management of the nun community.

In 1898, in the village of Tseblevo next to Zhuzhel he founded a new children’s “zakhoronka” where three nun candidates who were rejected by the Serving Sisters

monastery due to lack of space started working. Later Kyrylo Seletskyy together with the girls built a house for Virgin Mary Joseph Espoused Sisters. The nuns became known as Josephite Sisters [5].

On May 21st, 1901, “Dilo” Lviv paper published information about one of the first activities of newly-founded in Lviv first social pre-school society “Ruska Okhoronka” created by initiative of Nataliya Kobrynska and Mariya Hrushevskya (daughter of historian Mykhailo Hrushevskyy). The newspaper stated that thanks to efforts of “Ruska Okhoronka” society and generous donation of the veteran-patriot Rev. Kyrylo Seletskyy in the village of Tseblevo belonging to Zhuzhel village parish the first Rus (Ukrainian) “okhoronka” was founded for village children [4].

Obviously, it was about renewed activity or reorganization of the previous pre-school educational institution founded in 1898. The article stated that material ground for the “zakhoronka” was provided by the protector and founder K. Seletskyy who donated for this purpose a spacious house with a big vegetable garden and provided full material support. The institution was headed by Z. Maykovska who was assigned by “Ruska Okhoronka” society. The teacher had assistants from local girls – Josephite sisters.

Organized by Kyrylo, Serving Sisters and Josephite Sisters nun communities worked with pre-school children both in the early XX century and between WW1 and WW2. In 1929, Serving Sisters managed in Lviv, Peremyshl and Stanislav episcopates 39 “zakhoronkas” where studied 1,750 children [1]. A wide network of pre-school educational institutions was also created by Josephite Sisters who in the 1930s managed around 20 “zakhoronkas” in Galicia.

For his sacrificial church and social work Rev. Kyrylo Seletskyy was awarded a title of Honored Pope’s Chambellan and given the highest order of Emperor Franz Joseph I – the Knight Order Cross. Recently Ukrainian Greek Catholic church has started process of beatification of Kyrylo Seletskyy as a righteous man.

Kyrylo Seletskyy’s fruitful publicistic and writing activity is also worth mentioning – poems and translations, for mostly young readers and listeners. “His short stories are interesting, funny, clear for youngest [readers] and exciting for experienced ones” – it was written by Duchess Pototska who provided moral and material support to literary advances of Kyrylo Seletskyy [5].

Artistic works by the young author were highly estimated by Yu. Romanchuk, K. Luchakivskyy and O. Partytskyy – authors of “Rus Reader for Lower Levels of

Secondary Schools” which was prepared in two parts and published in 1871. Works by Kyrylo Seletskyy took an honorary place alongside with perfect samples of Ukrainian fiction writers from Galicia, Bukovyna and Superdnipro Ukraine – Taras Shevchenko, Ivan Kotliarevskyy, Hryhorii Kvitka-Osnovyanenko, Panteleymon Kulish, Markiyan Shashkevych, Yurii Fedkovych, Sydir Vorobkevych and many others. The reader was designed not only for gymnasia, but also for teachers’ seminaries in Galicia and Bukovyna that trained pedagogical staff for people’s schools and pre-school educational institutions [6].

Thus, would-be teachers and pre-school teachers had a possibility to study works by Kyrylo Seletskyy long before he founded first national pre-school educational institutions in Western Ukraine. In Lviv State Women’s Teachers’ Seminary students were introduced to Kyrylo Seletskyy’s personality and activity by the author of “Rus Reader” Omelian Partytskyy who had taught Ukrainian language and literature at the mentioned institution for years.

Works by Kyrylo Seletskyy were widely used for raising children in Ukrainian families and in first Ukrainian “zakhoronkas” of Serving Sisters and Josephite Sisters. It was firstly a collection of religious poems for children “Golden Booklet”, children’s reader “Own House” (1869), Ukrainian translation of L. Deharb’s catechism published under the title “Catechism for Children of Greek Catholic Rite” (1869) [7]. They were all actively supported and circulated by “Prosvita” society. In 1896, the first Ukrainian school book written by Kyrylo Seletskyy was published for Ukrainian “zakhoronkas” – “Short Catechism Exercises and Bible History for Use by Christian Mothers, “Zakhoronkas” and Pastors” [8]. It was quite natural that the first national school book prepared by a Greek Catholic priest for Ukrainian pre-school educational institutions dealt with religious-moral education which aimed at developing in children Christian values and helping to “learn God” through play. At the same time, “zakhoronkas” of Serving Sisters contributed to preserving national identity of the Ukrainians under conditions of suppression of their language, culture and historical heritage.

Kyrylo Seletskyy was the first to introduce Ukrainian readers to Jiovanni Bosco (1815-1888), an Italian priest, and now the holy person of Roman Catholic church, a founder of so-called preventive children’s educational system which became the opposite of repressive system when a teacher was at guard of discipline and applies punishment in case certain rules were broken. J. Bosco categorically objected to physical punishment that could harm a child’s personality and considered acceptable

only punishment of moral character, e.g. distant teacher's behavior with the punished child. J. Bosco deemed necessary "to give teenagers freedom to do what they want", "to find out seedlings of their positive features and try to develop them afterwards" [1].

In 1897, Rev. Kyrylo made a trip to Italy where he learnt principles of J. Bosco's educational activity and peculiarities of work of Salesian Congregation founded by him. As a result, in 1900, the work "Reverend Johann Bosco. His Life and Actions" was published in Peremyshl. In the introduction Kyrylo Seletskyk particularly emphasized significance for the Ukrainians of educational mission activity of Johann Bosco who was successful at taking care of "neglected children", "taking care of those rejected by the world and sentenced to moral decay" [9].

Particular advice and recommendations by Giovanni Bosco were reflected in the work by Kyrylo Seletskyk "How to Lead a Life of a Good Follower" (1908) designed mostly for sisters-teachers at nun communities organized by him. It especially focused on working with pre-school children [10].

Example of Giovanni Bosco, who published special popular literature for broader spiritual influence in people's language, encouraged Kyrylo Seletskyk to continue writing educational brochures. In the XIX century readers welcomed his "Book of Wisdom, or Life of Honest Man" (1874), "Stories of Cristopher Columbus's discovery of America" (1884), "Life of Holy John Goldenmouth" (1889), "Adventures of traveler James Cook" (1892), and in the early XX century were published issues about Father (Metropolit) Johann Snihurskyk (1904), Virgin Mary icon (1909), short stories of life of Arabic Christians (1909) and so on [5]. The author showed to young readers vivid life samples to follow in religious and social way and defended the idea that a person who trusts God and follows His commandments is to become a leader and discoverer in life.

Hereby one can conclude that life and artistic activity of Kyrylo Seletskyk were connected with various aspects of spiritual and public service to his people, but particular influence they had on process of organization and development of pre-school education in Western Ukraine. Kyrylo Seletskyk will be remembered as an organizer of first Ukrainian pre-school educational institutions, an author of educational-methodological works and children's educational fiction works, a researcher and a popularizer of foreign educational process.

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Using incentive action of electromagnetic radiation on the growth process timiryazev tilapia

Abstract: In the article under discussion is the question of the use of bio-resonance therapy to stimulate the timiryazev tilapia fingerlings growth rate by irradiation electromagnetic field (EMF).

Keywords: tilapia, stimulation, growth rate, the electromagnetic field, radiation, fish, hemoglobin, Indices of internal organs.

Использование стимулирующего воздействия электромагнитного излучения на процессы роста тимириязевской тиляпии

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Аннотация: В статье обсуждается вопрос использования биорезонансной терапии для стимуляции скорости роста молоди тимириязевской тиляпии облучением их электромагнитным полем (ЭМП).

Ключевые слова: тиляпия, стимуляция, скорость роста, электромагнитное поле, облучение, рыба, гемоглобин, индексы внутренних органов.

Аквакультура в последнее десятилетие - одно из самых быстро развивающихся направлений производства пищевой промышленности [1]. По данным ФАО, продукция тиляпии занимает второе место среди пресноводных рыб после карпообразных [2]. В направлении усовершенствования технологии культивирования ведутся многочисленные исследования, в том числе выведена

российская порода тимиразевская тиляпия [3,4]. Однако поиск новых подходов и методик в данном направлении не теряет своей актуальности.

Тиляпии относятся к неэлектрическим рыбам, рядом авторов определены пороговые значения характеристик электрического поля переменного тока, приводящие к иммобилизации их защитных реакций [5,6]. Целью исследований являлся поиск частоты электромагнитного поля, при которой скорость роста принимает максимальные значения, а также оценка изменений некоторых физиологических показателей рыб, облученных ЭМП заданной напряженности и частоты.

Методика эксперимента. Облучение исследуемых организмов проводили с помощью аппарата "Мустанг 2000" дистантно, расстояние между поверхностью воды и излучающим рупором не превышало 5 см. Уровень воды в опытном и контрольном аквариумах составлял 25 см. Открытая часть аквариума и рупор были экранированы слоем фольги в 4 мм. Время облучения – 3 часа ежедневно. Используемые частоты – 5; 16; 50; 2000 и 3000 Гц. Применяемые мощности – 11; 11,5; и 14 Вт. В ходе работы использовалась излучающая головка ЗМ-75 (магнитная насадка), имеющая зеркальную рабочую поверхность для усиления эффекта распределения магнитной индукции. Начальный вес особей составлял от 4 до 4,5 грамм (возраст 20 суток). Продолжительность опыта - 10 суток. Для каждой частоты опыт проведен в трех повторностях.

Для оценки воздействия электромагнитного излучения определяли скорость роста рыб по формуле: $\Delta t = \Delta w / (t_2 - t_1)$, где Δt – скорость роста, Δw – изменение массы, t_1 – начальное время, t_2 – конечное время [7]. Коэффициент упитанности для тиляпии (по Фультону) – вес рыбы, приведенный к единице длины – определяли по формуле: $K_y = (M \cdot 100) / L^3$, где M – масса рыбы (г), L – длина тела рыбы до конца чешуйчатого покрова (см). Норма данного показателя – 2,3 – 3,0. Для определения лейкоцитарной формулы на каждом мазке подсчитывали не менее 200 клеток. При дифференцировании лейкоцитов использовали общепринятые методики [8]. Для выявления физиологического состояния рыб рассчитывали индексы органов (сердца, печени, почек, желудочно-кишечного тракта, жабр, гонад) [9]. Индекс органа определялся по формуле: $I = X / Y$, где X – масса органа; Y – общая масса тела.

Статистическую обработку результатов экспериментов осуществляли при помощи интегральных пакетов статистической обработки информации Statistica. Для анализа соответствия вида распределения изучаемых признаков закону нормального распределения использовался W-критерий Шапиро-Уилка. Проверка гипотез об отсутствии различий признака между контрольными и опытными группами проводилась по t-критерию Стьюдента. Во всех случаях статистически значимыми считали различия при уровне $p < 0,05$. В качестве ошибок средних величин приведены стандартные ошибки среднего.

Обсуждение результатов. На основании проведённого статистического анализа данных о скорости роста тимиразевской тилляпии в различных опытных условиях (рис. 1) выявлена частота электромагнитного излучения (50 Гц), на которую приходится максимальные скорости роста (34 ± 8 мг/сут). В контроле скорость роста колебалась в течение опыта от 1 до 15 мг/сут.

Коэффициент упитанности по Фультону варьировал в пределах нормы в большинстве опытных групп организмов (от 2,6 при частоте 5 Гц до 3 при частоте 50 Гц и 3 кГц при норме от 2,3 – 3,0). При частоте облучения 16 Гц отмечалось незначительное отклонение показателя от нормы (3,1).

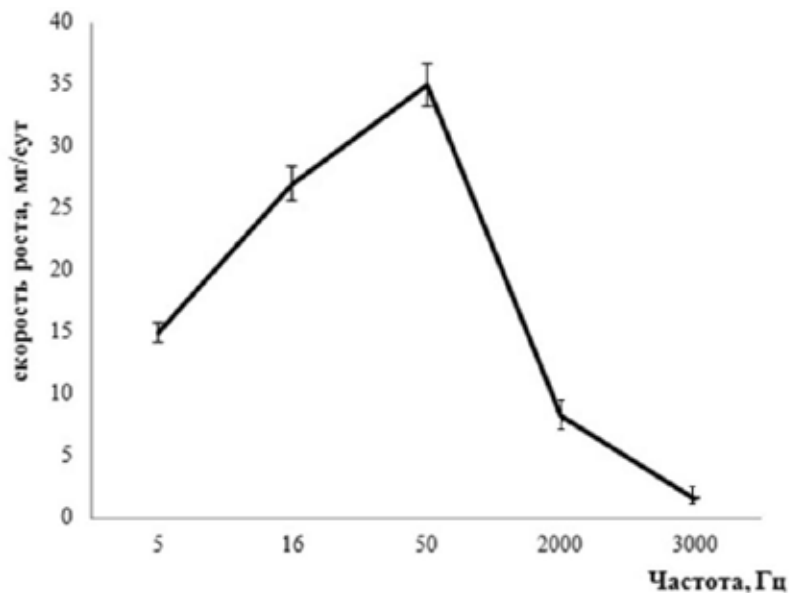


Рис. 1. Зависимость скорости роста молоди тимиразевской тилляпии от частоты облучения

Поскольку максимум скорости роста проявлялся при частоте 50 Гц, была проведена дополнительная оценка изменения основных физиологических показателей рыб (уровень гемоглобина, лейкоцитарная формула, индексы внутрен-

них органов) при данной частоте для обоснования безопасности применения стимуляции указанным облучением.

Результаты проведенных исследований показали, что средний уровень гемоглобина в крови облученных рыб составил $43,5 \pm 5,2$ г/л (норма $48,3 \pm 2,3$ г/л). Минимальные отмеченные значения уровня гемоглобина соответствовали 31,9 г/л, максимальные – 60,0 г/л. Уровень гемоглобина в контрольных группах варьировал от 30,0 до 56,2 г/л, при средних значениях $44,5 \pm 3,5$ г/л. Таким образом, нами не выявлено зависимости уровня гемоглобина от электромагнитного облучения с частотой 50 Гц. В опытной группе отмечена тенденция снижения содержания количества эритроцитов в крови облученных особей, хотя отклонение от нормы и разница внутри групп не имела критических значений.

Смещение лейкоцитарной формулы – важный показатель физиологического состояния рыб. Лимфоциты в исследуемых мазках крови тилляпии были ведущей группой, их содержание составляло при электромагнитном облучении в 50 Гц от 84,3 до 88,4 % от общего количества лейкоцитов (табл. 1). В контрольных группах абсолютное содержание отдельных типов лейкоцитов, за исключением лимфоцитов, приближалось к высшим границам нормы. В лейкоцитарной формуле крови опытных организмов отмечено значительное смещение количества форменных элементов относительно нормы: содержание лимфоцитов было близко к высшей границе, моноцитов и эозинофилов – к нижней. Однако только средние значения содержания эозинофилов выходили за пределы нормы. Их содержание оставалось во всех группах примерно на одном уровне (от 1,1 до 1,6 %), что в два раза ниже контрольных показателей.

Таблица 1. Лейкоцитарная формула в периферической крови тилляпии

Показатели, %	Норма (Tavares-Dias, 2000)	Контроль	ЭМП (50 Гц)
Лимфоциты	64 – 90	$75,5 \pm 0,7$	$86,2 \pm 0,8^*$
Моноциты	4,2 – 8,8	$7,2 \pm 0,4$	$4,5 \pm 0,3^*$
Эозинофилы	1,5 – 3,7	$2,2 \pm 0,07$	$1,1 \pm 0,07$
Нейтрофилы	1,6 – 15,5	$15,1 \pm 1,81$	$8,2 \pm 1,56^*$

* - отличия от контрольной группы статистически достоверны с уровнем значимости $p < 0,05$

Различия в индексах внутренних органов имеют диагностическое значение, по которому косвенно можно судить о метаболической активности органа. Индексы сердца, гонад были идентичны в опыте и в контроле (табл. 2). Отмечалось достоверное увеличение индекса печени при облучении ЭМП в 50 Гц, снижение индексов почек и желудочно-кишечного тракта. При этом видимых патологий обнаружено не было. Статистически достоверные изменения индексов внутренних органов дают основание полагать, что ЭМП заданной частоты и продолжительности 10 суток может оказывать влияние на массу отдельных органов и их систем, а также их метаболическую активность.

Таблица 2. Индексы внутренних органов тимирязевской тилляпии

Орган	Индексы органов	
	Контроль	ЭМП (50 Гц)
Почки	0,90±0,04	0,83±0,09*
Жабры	0,47±0,04	0,49±0,04
Печень	0,16±0,02	0,20±0,02*
Желудочно-кишечный тракт	2,18±0,04	2,11±0,05*
Гонады	0,17±0,03	0,17±0,03
Сердце	0,81±0,02	0,81±0,03

* - отличия от контрольной группы статистически достоверны с уровнем значимости $p < 0,05$

Небольшие изменения индексов органов могут свидетельствовать о стрессовой реакции организма на изучаемый фактор. Возможно, что дальнейшее воздействие ведет к тому, что значительная часть энергии потребляемого корма расходуется на приспособление организма к хроническому облучению. Это приводит к снижению веса и общему падению скорости роста.

При увеличении времени облучения эффект усиления скорости роста рыб нивелируется (рис. 2). Дальнейшее продолжение облучения приводило к ухудшению данного показателя. Скорости роста рыб в опытной группе в возрасте 40-ка суток (20-е сутки облучения) практически не отличались от контрольных значений.

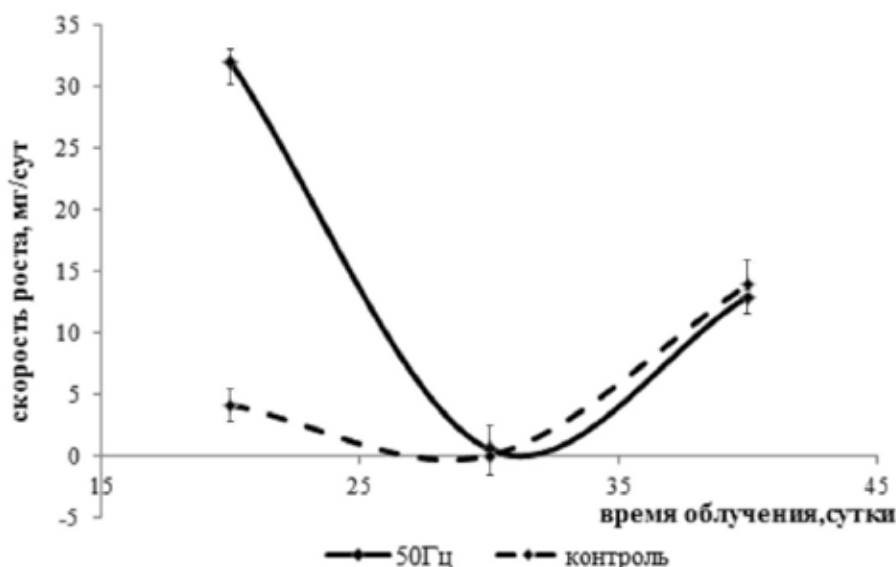


Рис. 2. Изменение скорости роста молоди тимирязевской тиляпии в облученных группах при изменении длительности облучения

Коэффициент упитанности по Фультону в опытных группах был несколько ниже, чем в контроле, однако находился в пределах нормы. Незначительное его уменьшение можно объяснить увеличением скорости роста и изменением при этом соотношения между массой и размером тела рыб.

Излучения в широком спектральном диапазоне способны вызывать отклик у биологических объектов, могут обладать биостимулирующим и терапевтическим действием [10,11]. В проведенных исследованиях отчетливо видна реакция опытных организмов на ЭМП. Вероятнее всего возрастание скорости роста связано со стимулирующим влиянием ЭМП на деление соматических клеток. В работах ряда исследователей выдвигаются предположения об усилении белково-синтетической функции клеток под влиянием ЭМП [13]. Отмечалось также влияние низкочастотного ЭМП на увеличение митотической активности клеток [11, 12]. Механизм данного явления объясним тем, что магнитные поля способствуют увеличению проницаемости поверхностной мембраны к ионам Ca^{2+} и утечкой их в цитозоль. Этот эффект действует как метаболический стимулятор процессов роста и изменения сроков митоза [13]. Возможно, ускорение клеточного цикла не дает возможности полностью восстановить ресурс клетки после деления и с течением времени приводит к его истощению, что выражается в снижении эффективности действия ЭМП на скорость роста молоди тиляпии.

Заключение. Проведенные исследования показали возможность использования электромагнитного поля для стимуляции роста молоди тимирязевской тиляпии. Эффект стимуляции роста проявляется при продолжительности воздействия до 10-ти суток электромагнитным полем частотой 50 Гц. Дальнейшее продолжение облучения приводит к ухудшению показателя скорости роста рыб. Электромагнитное поле с частотой 50 Гц и длительностью воздействия 10 суток оказывает влияние на изменение гематологических показателей и индексы внутренних органов.

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Effect of reforms carried out on indicators of higher education system in Russia

Abstract: The current development trend, reflected in the current educational statistics characterizes only the quantitative aspects of the education system, not reflecting the impact of the activities of the education system and the relationship of these indicators with the objectives of the reforms. In this regard, in this study, we carried out an attempt to link the reforms with the performance of higher education development.

Keywords: higher education reform, evaluation, development, performance, problems.

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Влияние проводимых реформ на показатели развития системы высшего образования в России

Аннотация: Существующая тенденция развития, отражаемая в сегодняшней образовательной статистике характеризует только количественные аспекты системы образования, не отражая результативность деятельности системы образования и взаимосвязи этих показателей с целями и задачами проводимых реформ. В этой связи в данном исследовании проведена попытка увязать проводимые реформы с показателями развития системы высшего образования.

Ключевые слова: высшее образование, реформирование, оценка, развитие, показатели, проблемы.

Изменения, происходящие в образовании, отражаются в системе образовательной статистики, содержащей многие сведения, которые характеризуют состояние системы высшего образования. Она отражает новые явления и процессы в истории образования, проявляющиеся в создании негосударственных вузов, введения платного обучения, формировании многоуровневой системы подготовки специалистов и др., очевидно, что вводятся показатели в соответствии с международными требованиями.

В концепции экономической теории рынок высшего образования исследуется с позиции интеллектуально-сконструированного пространства, где спрос и предложение зависит от качества образования, предлагаемого продавцами в лице высших учебных заведений и требований покупателей этих услуг [1]. Вузы в данном пространстве являются посредником между этими рынками, где предлагается высококвалифицированный труд, направленный на удовлетворение потребности бизнес-сообщества. О спросе на образовательные услуги свидетельствуют данные о приеме студентов по источникам финансирования (см. рис. 1).



Рис. 1. Динамика приема студентов по источникам финансирования, тыс. чел. [7]

По данным рисунка видно, что тенденция высокой доли коммерциализации сохранялась на протяжении всего анализируемого периода, при этом в 2012 году уровень платных образовательных услуг был равен уровню 2005 года. Это также подтверждает процесс реформирования А. Фурсенко, проходивший в этот период с 2004 по 2012 гг. С одной стороны, это дало возможность расширить выбор обучающихся по образовательным формам и уровням, а с другой, - способствовало привлечению в учебные заведения дополнительных финансов для их развития при ограниченности бюджетного финансирования. Однако задача, которая ставилась в рамках этого процесса реформирования - приведение структуры профессионального образования в соответствии с запросами рынка труда, не была достигнута [3], поскольку активная коммерциализация системы высшего образования привела к перепроизводству выпускников по одним направлениям и специальностям в угоде моде, а не реальному спросу рынка труда.

Выпуск студентов по специальностям представлен на рисунке 2.

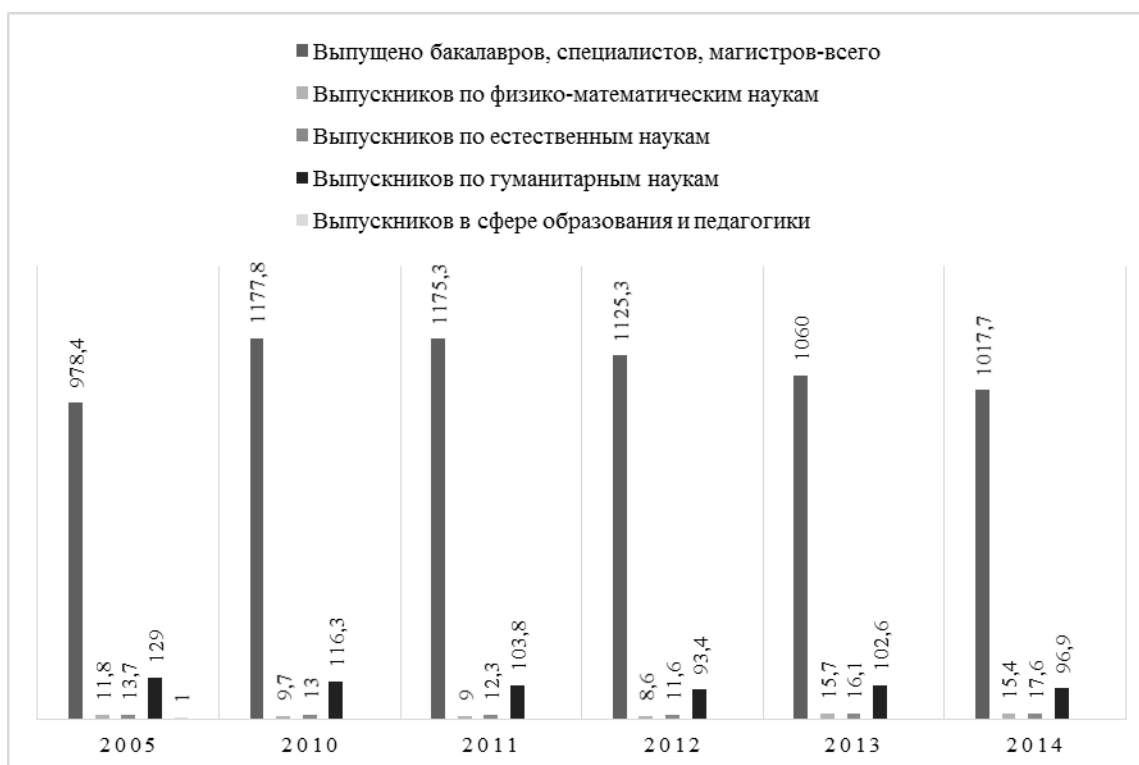


Рис. 2. Динамика выпускников вузов по специальностям и направлениям, тыс. чел.

Так, к 2014 году наибольшее количество выпускников государственных вузов из общего количества 1 017 700 чел. приходилось на экономическо-

управленческое направление - 331 000 чел., по гуманитарным направлениям 185 300 человек, по педагогическим – 96 900 чел. Эти три направления, лидирующие по количеству выпускников, свидетельствует о гуманитарной направленности развития. Тогда как спрос на образовательную услугу по естественному и физико-математическому направлениям не высок: в 2014 г. выпущено соответственно 17 600 и 15 400 чел.

Вместе с тем, для определения соответствия спроса на образовательные услуги и спроса на рынке труда на данных специалистов, исследуем уровень участия на рынке труда лиц, имеющих высшее образование, по направлениям подготовки, представленный на рис. 3.

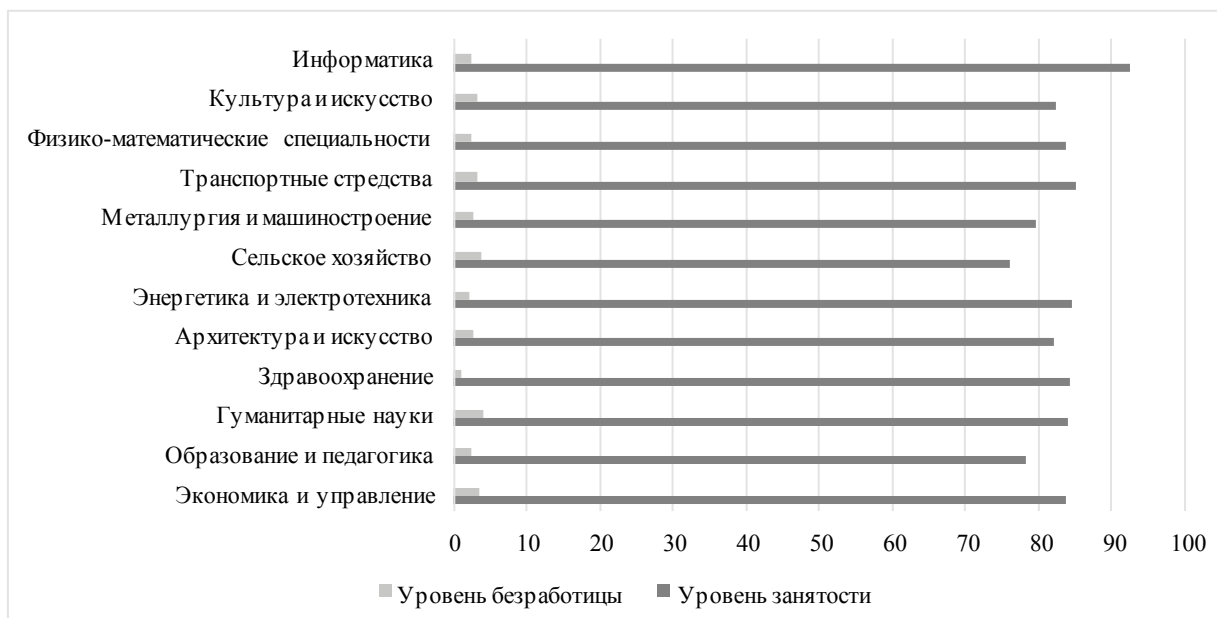


Рис. 3. Уровень участия на рынке труда лиц, имеющих высшее образование, по направлениям подготовки

По данным рисунка очевидно, что наивысший уровень занятости среди работников с высшим образованием имеет направление информатика и вычислительная техника - 92,6%, на втором месте - энергетика и электротехника - 84,7%, наименьший уровень занятости работников с высшим образованием по направлению сельского хозяйства - 76,2%. По уровню безработицы высокий показатель среди работников с высшим образованием имеет направление гума-

нитарных наук – 4,1%, а наименьший уровень безработицы – 1% в сфере здравоохранения.

Это еще раз подтверждает мысль о существовании диспропорций в подготовке специалистов [2,4], и, как следствие, недостижение поставленной задачи реформирования системы высшего образования в период с 2004 по 2012 год. Ситуация объясняется рядом фундаментальных причин, среди которых важнейшей является вытеснение неинтеллектуальных работников, не имеющих высшего образования с конкурентоспособных позиций на рынке труда, а также невозможность освоить весь объем потенциально полезной информации, необходимой для эффективного выполнения трудовых функций, которая приводит к повышению временных затрат на образование, т.е. необходимости обучения в течение всей жизни.

Как показывают данные образовательного потенциала страны, характеризующие доли участия населения в непрерывном образовании, в сравнении с Европейскими странами [5,6] (см. рис. 4), доля участия предприятий в непрерывном образовании также незначительна.

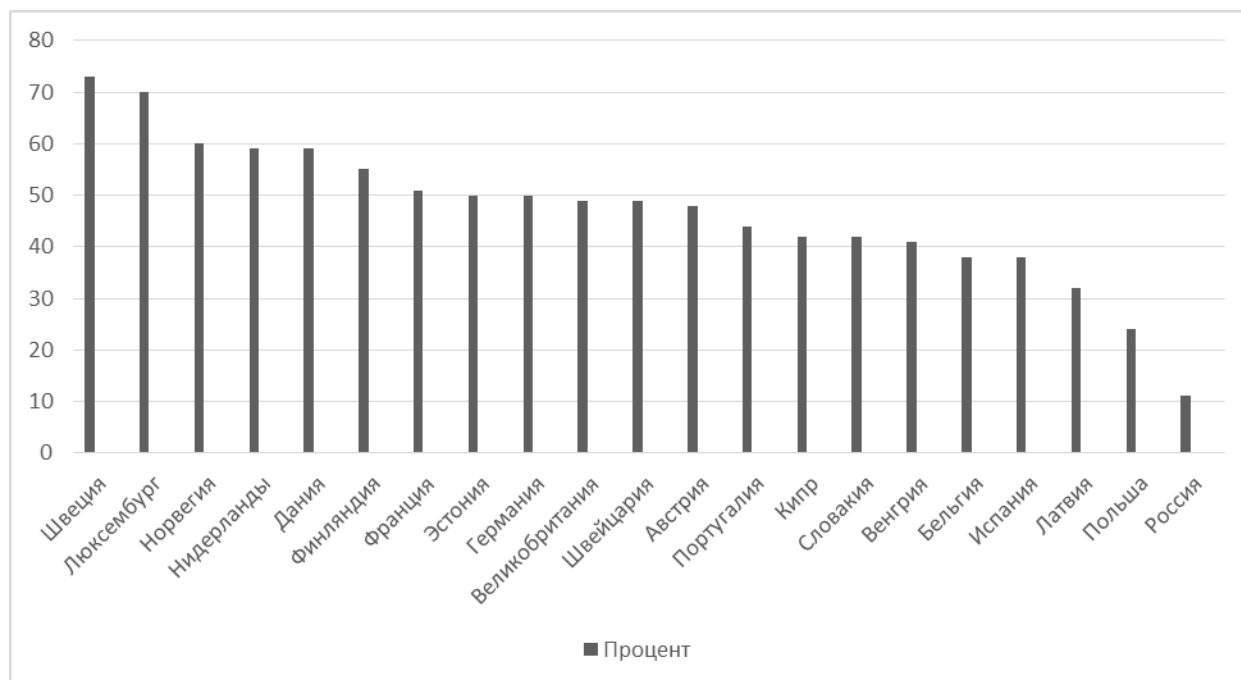


Рис. 4. Доля участия населения в непрерывном образовании России и Европейских стран

Необходимо отметить, что рассмотренные данные представлены на основе репрезентативных опросов населения. Данные по европейским странам отражают их за 2007 и 2011 года, тогда как по России - за 2014 год. Результаты исследования по России проведены на основе опроса центром Юрия Левада 1189 человек в возрасте 25-64 лет. Под понятием «непрерывное образование» или образованием в течение всей жизни (lifelong learning) понимаются все целенаправленные виды образовательной деятельности, проводимые непрерывно с целью совершенствования и приращения знаний, навыков и умений в профессиональной деятельности. Представленная сравнительная характеристика международного образовательного тренда, характеризуемая долей участия населения в непрерывном образовании, России и Европейских стран, показывает, что Россия пока занимает предпоследнее место. Это обусловлено несовершенством процесса непрерывного образования, что подтверждает мысль об актуальности разработки механизма формирования человеческого капитала. Ибо система образования должна выстраиваться в парадигме «через всю жизнь», а не «на всю жизнь».

Проведенное исследование современных тенденций в развитии системы образования на национальном уровне, в том числе – под влиянием международных трендов показало, что социально-экономическая трансформация, сопровождающая процессы становления постиндустриального общества в развитых странах, приводит к пересмотру моделей функционирования института образования.

Выводы

1. Проведенный анализ образовательных трендов в России позволяет заключить о сохранении массовости высшего образования, и данный тренд будет сохраняться, поскольку совершенство информационного обеспечения агентов международного рынка образовательных услуг возрастает с каждым годом. Все это приводит к необходимости повышения международной конкурентоспособности образовательных услуг для обеспечения элементарной функции выживания высших учебных заведений.

2. Исследование влияния процессов реформирования на показатели развития высшего образования показал, что задача, которая ставилась в рамках реформы А. Фурсенко (2004-2012 г.г.), приведение структуры профессионального образования в соответствии с запросами рынка труда, не была до-

стигнута, поскольку активная коммерциализация системы высшего образования, которая им культивировалась, привела к перепроизводству выпускников по одним направлениям и специальностям в угоде моде, а не реальному спросу рынка труда. Показатели подтвердили наличие диспропорций в подготовке специалистов.

3. Представленная сравнительная характеристика международного образовательного тренда, характеризуемая долей участия населения в непрерывном образовании, России и Европейских стран, показывает, что Россия пока занимает предпоследнее место. Это обусловлено несовершенством процесса непрерывного образования, что подтверждает мысль об актуальности разработки механизма формирования человеческого капитала, ибо система высшего образования должна выстраиваться в парадигме «через всю жизнь», а не «на всю жизнь».

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Formation of astronomical concepts in the future teachers of astronomy teachers in the study of physics

Abstract: The article is devoted to the problems of preparation of modern teacher of astronomy. The problem of intercommunication of elements physical and astronomic concepts which have integral, system character in forming of pictures modern scientific picture of the world is based.

Keywords: astronomy, physics, concept, presentation, methodological features, knowledge.

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Формування астрономічних понять у майбутніх учителів астрономії в процесі вивчення фізики

Анотація: Стаття присвячена проблемам підготовки сучасного вчителя астрономії шляхом оволодіння ним сукупністю астрономічних та фізичних понять. Доведено, що особливості формування астрономічних понять мають цілісний, системний характер у взаємозв'язку уявлень про сучасну природничо-наукову картину світу.

Ключові слова: астрономія, поняття, презентація, методологічні особливості, знання.

Астрономія належить до фундаментальних наук, які вивчають загальні закономірності перебігу природних явищ, закладають основи наукового світогляду та системи знань про методи й результати вивчення законів руху, фізичної природи, еволюції небесних тіл. Використання наукових досягнень фундаментальних природничих наук (а також прикладних, що на них базуються) є основою ефективного функціонування високотехнологічного суспільства. Однією з умов розвитку природничого мислення студентів є науковий підхід до процесу формування астрономічних понять. Стан даної проблеми неодноразово висвітлювався у працях авторів: Л.Ю. Благодаренко, Н.О. Гладушиної, Г.О. Грищенко, М.В. Головка, В.Г. Каретнікова, І.А. Климишина, М.І. Крячка, С.Г. Кузьменкова, О.І. Ляшенка, М.Т. Мартинюка, М.П. Пришляка, В.Д. Сиротюка, В.П. Сергієнка, М.І. Шута, Я.С. Яцківа та інших, а також нами в [1, 3].

Система астрономічних понять є важливим структурним елементом астрономічної науки, в тому числі – шкільного курсу астрономії. Астрономічні поняття пов'язані між собою відповідними законами і теоріями. Поняття як результат узагальненого теоретичного мислення є засобом подальшого пізнання глибин природничої науки. Значна частина астрономічних понять має наскрізний характер, а тому може широко використовуватися у вивченні інших природничих дисциплін.

Для майбутнього вчителя астрономії важливо володіти методикою формування як астрономічних, так і фізичних понять. Адже фізика і астрономія є найбільш спорідненими фундаментальними науками, які вивчають загальні закономірності перебігу та розвитку явищ навколишнього світу. Взаємозв'язок астрономії з фізикою у першу чергу визначається тим, що астрономія містить у собі весь діапазон понять сучасної фізики й повною мірою спирається на її закони. Справедливість суджень фізичних теорій у формуванні єдиної природничо-наукової картини світу переконливо доводиться за допомогою сучасних астрономічних досліджень. Конкретизація знань про фізичні теорії і окремі теоретичні положення сучасної фізики на астрономічному матеріалі (і навпаки), а також обґрунтування даних сучасної космології на основі фундаментальних фізичних теорій є переконливою ілюстрацією взаємозв'язку емпіричних і теоретичних мето-

дів (і рівнів) пізнання та сучасних тенденцій цього взаємозв'язку. Поглиблений інтегрований розгляд явищ, процесів і закономірностей природи, аналіз функціонування універсальних законів паралельно в курсах різних природничих дисциплін дає більш глибоке усвідомлення цілісності картини світу [1]. Тому формування у майбутніх учителів астрономії астрономічних понять з огляду на такий взаємозв'язок є актуальною проблемою.

Систему астрономічних знань визначають наступні структурні компоненти: явища, об'єкти, факти, – основою яких є спостереження; поняття, закономірності, – що формуються в результаті аналізу явищ, об'єктів, фактів; теорії, – що пояснюють явища, закони, взаємозв'язки; природничо-наукова картина світу. Астрономічні знання за своїм змістом є фактично знаннями природничо-науковими. Але в той же час вони відзначаються й певною особливістю. Останнє характерне, в першу чергу тим, що факти, які отримані в результаті астрономічних спостережень, не можуть бути адекватно трактовані без їх тлумачення на основі фізичних законів і теорій [3].

Наш досвід викладання цих дисциплін засвідчує, що повноцінне засвоєння астрономічних знань можливе лише за умови поєднання чуттєво-конкретного рівня з абстрактним, теоретичним рівнем пізнання вже на початкових етапах вивчення студентами інтегрованого матеріалу курсів фізики і астрономії. За цього, в процесі відпрацювання відповідної методики такого матеріалу, враховується, що на відміну від фізичних понять, формування астрономічних має свою специфіку. Перш за все, це пов'язано з особливими властивостями досліджуваних об'єктів та явищ. Специфічність сприйняття і вивчення астрономічних об'єктів (розміри космічних тіл, їх віддаленість від дослідника та ін.) не дозволяють безпосередньо вивчати астрономічні об'єкти, ставити експерименти у їх фізичному тлумаченні [2]. Крім того, характерним для астрономії є те, що для опису явищ (тобто для побудови модельної гіпотези), які відбуваються, наприклад, в надрах зірок, доводиться використовувати весь апарат сучасної фізики – теорії і закони термодинаміки, газодинаміки, магнітогідродинаміки, електромагнетизму, оптики, ядерної фізики та інші її розділи. Вивчення фізичної природи небесних тіл у курсі астрономії є логічно необхідним завершенням формування фізичних понять у старшій школі.

Необхідним елементом методичної підготовки майбутніх учителів астрономії має бути сформоване усвідомлення того, що у загальноосвітніх закладах

на рівні стандарту в учнів формуються основні поняття, вивчаються фундаментальні закони і теорії класичної і сучасної фізики. Ефективність їх засвоєння значною мірою залежить від систематичного і цілеспрямованого використання у навчанні фізики відомостей з астрономії та астрофізики.

На першому етапі вивчення фізики, ознайомлюючи учнів з предметом фізики і фізичними явищами, вчителю необхідно детально розкрити значення фундаментальних наук для розвитку сучасних технологій. Визначаючи зміст поняття «фізичне явище», учням наводять приклади відомих явищ природи, що є предметом вивчення астрономії: зміна дня і ночі, зміна пір року, ілюзорний рух Сонця, обертання Місяця навколо Землі та інші. За цього пояснюється, що всі зміни, яких зазнають фізичні тіла, взаємопов'язані і взаємообумовлені завдяки дії у природньому середовищі основоположних законів збереження: маси, енергії, електричного заряду, моменту імпульсу та ін. Наприклад, внаслідок обертання Землі навколо осі, відбувається зміна дня і ночі, а рух Землі навколо Сонця та нахил земної осі до площини, в якій відбувається цей рух, зумовлюють зміну пір року на Землі. Набуті знання людство широко використовує у своїй практичній діяльності. Значно посилює актуальність даної тематики питання розвиваючого характеру, наприклад: «Чому спостерігач на Землі не помічає її обертання навколо Сонця? За рахунок чого Місяць змінює свій зовнішній вигляд? Що таке «падаючі» зорі? З якою швидкістю рухаються разом із Землею люди і всі предмети, що є на Землі, в результаті її добового обертання? Яка будова Всесвіту?».

Під час вивчення явища тяжіння доцільно акцентувати увагу учнів на понятті ваги тіл. Вага тіла є виявом дії сили земного тяжіння і сили взаємодії даного тіла з опорою чи підвісом.

На наступному етапі ці поняття значно поглиблюються. Більш детально вивчаються поняття центра ваги і центра мас тіла, реактивний рух, зокрема рух космічних апаратів, відзначаються успіхи та перспективи освоєння космосу. Методичні прийоми подачі цього матеріалу мають бути націлені на усвідомлення учнями того, що сила тяжіння діє не лише на Землю збоку Сонця, а й проявляється в нескінченних просторах Всесвіту. Вивчивши особливості прояву сил тяжіння, людству вдалося знайти засоби для підкорення цієї сили, створити штучні супутники та автоматичні станції, запускаючи їх у космос, керувати їхнім польотом з можливістю повернення на Землю.

Під час вивчення закону всесвітнього тяжіння визначають сили, з якими тіла взаємодіють у Всесвіті. Майбутній учитель астрономії має бути обізнаним з історією відкриття закону всесвітнього тяжіння, основою якого були астрономічні спостереження. Сформулювавши закон всесвітнього тяжіння і використовуючи відповідну формулу, варто провести розрахунки прискорення вільного падіння в будь-якій точці, підставивши числові значення маси і радіуса небесного тіла.

Поняття ваги тіла і невагомості відносяться як до фізичних, так і до астрономічних понять, оскільки стан невагомості виникає у тіла, коли воно рухається з прискоренням вільного падіння. За межами земної атмосфери, за вимкнених двигунів, діє лише сила всесвітнього тяжіння, тому під дією цієї сили космічний апарат і всі тіла, що в ньому знаходяться, перебувають у стані невагомості. Безпосереднє значення для астрономії має вивчення у курсі фізики законів руху штучних та природних супутників, введення понять космічних швидкостей та їх розрахунку, зокрема, поняття швидкості «втечі» тіла з поверхні різних планет. Важливе значення для підкорення космічних просторів відіграють закони збереження, адже на їх основі тлумачиться, наприклад, явище реактивного руху.

При вивченні поняття енергії, зокрема потенціальної, наголошується, що потенціальна енергія – це енергія взаємодії тіл. Тому, коли розглядають потенціальну енергію тіла, піднятого над поверхнею Землі на деяку висоту, визначають енергію системи «Земля – тіло», у якій характеризується взаємодія планети і даного тіла, що є окремим випадком розрахунку потенціальної енергії тіла в конкретному силовому полі.

Незаперечним є той факт, що Сонце є основним джерелом енергії для Землі. Але звідки береться ця енергія? Джерело енергії Сонця – ядерні реакції, що відбуваються в його надрах. Після вивчення теми «Будова атома» слід наголосити, що на Землі за законами фізики побудовані і діють технічні установки (реактори типу стелараторів і токомаків), у яких відбувається перетворення і вивільнення енергії аналогічно до процесів на Сонці. Вивчаючи теми з електромагнетизму, зокрема властивості магнітного поля Землі, орієнтуємо студентів звертати увагу учнів на існування магнітних бур, які інколи реєструє звичайний компас, особливо під час полярних сьайв. Подібні явища спостерігаються й на інших планетах і навіть на деяких великих супутниках. Вони пояснюються дією потоків космічних частинок, що йдуть від Сонця до земної атмосфери. Виявляється, що

земний магнетизм нерозривно пов'язаний з процесами, які відбуваються на Сонці та у космосі.

Досить цікавим з точки зору формування астрономічних понять є розділ «Механіка». Об'єктами вивчення механіки виступають не реальні тіла з певними фізичними параметрами, а ідеалізовані об'єкти (моделі), на зразок матеріальної точки, абсолютно твердого тіла та ін. Такі моделі дають можливість зосередити дослідження на вивченні основних законів механічного руху. Перший розділ механіки – «Кінематика» розглядає рух тіл без з'ясування причин виникнення руху й причин зміни цього руху. На перших етапах вивчення зазначеного розділу вводяться основні поняття, одним з яких є поняття «матеріальної точки» як тіла, розмірами якого в даному випадку нехтують. Це можна пояснити на такому прикладі: відстань від Землі до Сонця набагато більша за розміри самої Землі, тому з достатньою точністю можна розглядати рух Землі відносно Сонця (й всіх інших тіл Сонячної системи) як рух матеріальної точки. Іншим прикладом матеріальної точки є рух супутника Землі – Місяця, який проектується у вигляді точки, що рухається по небосхилу.

Звертаємо увагу студентів, що важливе значення в механіці відіграє введення понять відносності руху і спокою. Навіть, якщо тіло нерухоме відносно Землі, то воно рухається відносно Сонця або інших планет. За таким же зразком вводиться поняття відносності швидкості. Рух Землі, Місяця, а також планет і їхніх супутників детально ілюструє рух по колу. У наведенні таких прикладів формуються астрономічні поняття: планета, супутник, рух планет, їхніх супутників тощо.

У розділі «Кінематика» обґрунтовується також необхідність вибору тіла відліку для вивчення руху штучних супутників Землі і автоматичних міжпланетних станцій (відносно нерухомого спостерігача на Землі або на Сонці). За цього орієнтуємо студентів, що при вивченні цього матеріалу в школі, є можливість показати учням, що всі тіла перебувають у безперервному русі, немає жодного тіла, яке перебувало б у стані абсолютного спокою. Доречно навести значення швидкості руху деяких космічних об'єктів. Зокрема, Земля рухається навколо Сонця з середньою швидкістю 29,8 км/с, а навколо своєї осі обертається зі швидкістю 0,464 км/с (для точок екватора). Для учнів цікавим буде й той факт, що серед зір, які обертаються навколо центра Галактики на такій же відстані, що й Сонце, немає жодної зорі, швидкість якої перевищувала б 285 км/с. Для закріп-

лення теоретичного матеріалу учням варто запропонувати низку кількісних та якісних задач. Наприклад: «Визначити швидкість і прискорення, з якими рухається будь-яке тіло разом із Землею, беручи участь у її добовому обертанні, якщо воно перебуває на екваторі. Порівняти їх із швидкістю і прискоренням цього тіла відносно Сонця».

Наступний важливий розділ механіки – «Динаміка», що вивчає рух матеріальних об'єктів з урахуванням їхніх взаємодій. Цей розділ ґрунтується на законах Ньютона, які, в свою чергу, з достатньою точністю описують переміщення макроскопічних тіл у просторі, які рухаються з незначними швидкостями, порівняно зі швидкістю світла. За допомогою цих законів класичної механіки роблять розрахунки руху різних видів транспорту, рідин, газів, штучних супутників, космічних об'єктів – планет, комет, зірок, галактик тощо. У процесі вивчення першого закону Ньютона (закону інерції) вводиться поняття інерціальної системи відліку (ICB). Пояснюючи особливості ICB, варто ввести поняття геоцентричної та геліоцентричної систем відліку. Прикладом ICB для опису значної частини механічних рухів у земних умовах може бути так звана геоцентрична система відліку, яку пов'язують із Землею і за цього нехтують обертанням Землі навколо Сонця й навколо власної осі. Проте, оскільки ICB – це абстракція, яка тим точніше збігається з реальною системою відліку, чим більша частина тіл береться за тіло відліку в системі відліку, то геоцентрична система відліку наближено вважається інерціальною. Більшою мірою інерціальною буде геліоцентрична система відліку, яка пов'язана з центром Сонця. Звичайно, і геліоцентрична система відліку також не є ідеальною ICB, оскільки Сонце обертається по орбіті відносно центра Галактики зі швидкістю близько 300 км/с.

У методичній підготовці майбутнього вчителя астрономії ми також виходимо з того, що, крім іншого, основним джерелом інформації про віддалені космічні об'єкти слугує електромагнітне випромінювання (світло), яке приходить від них. Характеристики таких об'єктів складаються на основі реєстрації і аналізу їх інтенсивності, спектрів, поляризації, виду такого випромінювання тощо. А ці факти і явища, як відомо, детально вивчаються у розділі «Оптика» загального курсу фізики. Якщо ж врахувати, що перераховані характеристики небесних тіл визначаються значеннями температури, щільністю речовини, наявністю магнітного поля і його величини, можливим впливом сил тяжіння, то методика формування астрономічних понять у студентів повинна якомога ширше спиратися на факти-

чний матеріал практично всіх розділів фізики. Адже саме завдяки розвиткові фізики, створенню приладів і установок, здатних реєструвати широкий спектр частот випромінювання космічних об'єктів, перетворило астрономію з візуально-спостережної у всехвильову науку. У даний час в астрономії використовуються практично всі діапазони – від радіохвиль до гамма-випромінювання. Крім того, в оптиці розглядаються різні аберації оптичних систем, які використовуються у різних модифікаціях оптичних телескопів і знання яких астрономами допомагає запобігти отриманню нечітких зображень зірок, туманностей, галактик тощо.

Отже, наша практика засвідчує, що методично продумане використання астрономічних понять у курсі фізики й фізичних у курсі астрономії дозволяє більш глибоко та багатоаспектніше формувати астрофізичне мислення у майбутніх учителів астрономії.

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Distance learning through heuristic approach

Abstract. The article highlights the possibility of improving distance learning through its combination of modern information and communication technology with heuristic technologies in the university educational system. It contributes to the successful formation of basic professional competences of distant students.

Keywords: distance learning, heuristic technology, information and communication technology, professional competence, pedagogical diagnostics, evaluation criteria.

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Дистанційна освіта: евристичний підхід

Анотація. У статті висвітлюється можливість вдосконалення дистанційного навчання шляхом поєднання сучасних його інформаційно-комунікативних технологій з технологіями евристичного навчання в освітній системі університету, що сприяє успішному формуванню основних професійних компетентностей студентів-дистантів та їх творчій самореалізації.

Ключові слова: дистанційна освіта, евристична технологія навчання, інформаційно-комунікативна технологія, професійні компетентності, педагогічна діагностика, критерії оцінювання.

Постановка проблеми. Динамічність економічних і соціокультурних процесів, що відбуваються в сучасному суспільстві, сприяє активному впровадженню дистанційної освіти як одного з напрямів реформування та стратегічного розвитку вищої педагогічної освіти. Педагогічні можливості дистанційного навчання для формування професійних компетентностей майбутнього фахівця полягають передусім у тому, що таке навчання створює більш комфортні, порівняно

з традиційними видами навчання, умови для творчого самовираження особистості; допомагає студентам демонструвати продукти своєї творчої діяльності всім охочим; надає експертні можливості оцінювання творчих досягнень студентів. Дистанційне навчання припускає інтеграцію інформаційно-комунікаційних та евристичних технологій, які в сукупності забезпечують інтерактивність взаємодії суб'єктів освіти, творчий характер та продуктивність навчального процесу, можливість для студентів створювати власні, значимі для них освітні продукти, постійно підвищувати навчальні досягнення студентів.

Аналіз актуальних досліджень. Ученими М. Лазарєвим [1], Л. Сірик [2], А. Хуторським [3] та іншими доведено, що для ефективної організації дистанційного навчання майбутніх учителів, зокрема учителів філологічних спеціальностей, необхідним є органічне поєднання в дистанційному навчанні різних видів інформаційно-комунікативних технологій (ІКТ) (інформаційних, інтерактивних, діагностичних) та евристичних дидактичних форм, методів і засобів (навчальне проектування; діалогова взаємодія; професійно-творчі дискусії; медіа-конференції; евристичні тестові завдання з використанням серії пізнавально-творчих запитань; презентація й захист творчих проектів із їх інтерактивним обговоренням; творчі комп'ютерні ігри тощо). Застосування в дистанційному навчанні евристичних технологій уможливорює досягнення стратегічної мети сучасної вищої педагогічної освіти – оволодіння майбутнім фахівцем професійними компетентностями на творчому рівні й успішну їх реалізацію в практичній діяльності.

Мета статті полягає у з'ясуванні умов успішного формування професійних компетентностей майбутнього фахівця в дистанційному навчанні іноземних мов із застосуванням евристичних технологій.

Виклад основного матеріалу. Доступні для дистанційного навчання евристичні технології навчання сприяють кращому, осмисленому освоєнню навчального матеріалу, підвищують мотивацію студентів, розвивають їхні творчі (методологічні і пізнавальні) здібності, дозволяють підвищити рівень їхньої пізнавально-творчої самостійності, розвивають логічне та евристичне мислення, основні професійно-творчі вміння. Відповідно до сучасних вимог освіти освоєння студентами професійних компетентностей орієнтується на розвиток евристичного мислення та евристичних умінь для успішної професійно-творчої самореалізації студентів.

Водночас збагачення традиційних форм дистанційної освіти евристичним інструментарієм вимагає від викладача не тільки професійної компетентності щодо організації дистанційного навчання, але й умінь застосовувати евристичні технології, органічно поєднувати їх з досконалим володінням комп'ютерною технікою, розробленими навчальними медіа-програмами тощо. Тому до організації дистанційного навчання із застосуванням навчально-методичного інструментарію евристичного характеру, було розроблено й упроваджено систему такої підготовки, складовими якої були: 1) оволодіння теоретичними основами комп'ютерної грамотності та евристичного навчання; 2) набуття вмінь працювати із комп'ютерною технікою й іншими гаджетами, зокрема такими ноу-хау, як створення й редагування зображень, наповнення Інтернет-ресурсів контентом, аналіз функціональних можливостей сайту для доступу до нього й обміну інформацією; 3) створення за допомогою ІКТ самостійно або в груповій кооперації значущих творчих освітніх продуктів (моделей, проектів, таблиць, діаграм, творів, розповідей, листів тощо); 4) досягнення комунікативної діалогової взаємодії творчих груп щодо пошуку, відбору нової інформації, створення інноваційних освітніх мереж, складних проектів (веб-сторінок, професійних сайтів); 5) організація обміну інформацією, інноваційними ІКТ-технологіями з іншими кафедрами, університетами та досвідом застосування в дистанційному навчанні евристичних засобів, проведення Інтернет-конференцій, презентації й захисту створених професійно-творчих продуктів [4, с. 9].

Практичні завдання дистанційного курсу з іноземних мов (англійської та німецької) мають детальні методичні рекомендації щодо їх виконання, деякі зразки алгоритмічних та евристичних дій. Особлива увага приділяється критеріям діагностики та оцінювання, формам і способам презентації результатів, термінам виконання й корегування завдань. Дистанційне навчання передбачало активну взаємодію викладача й студентів у режимі реального часу з аналізом та узагальненням теоретичного матеріалу та освоєних умінь. Під час такої взаємодії застосовували спеціальні серії евристичних запитань, які вимагали надання достатньо короткої відповіді на них із постійною апеляцією до матеріалів лекції й списку рекомендованої літератури та розв'язання проблемних завдань. У процесі експериментальної роботи в межах розроблених дистанційних курсів знайшли широке застосування евристичні бесіди на основі суб'єкт-суб'єктної діалогової взаємодії, групові медіа-дискусії, створення й презентація студентами дис-

танційних проектів евристичного змісту, розповідей, творів, творчих діалогів, серії евристичних запитань; формування й розв'язання проблемних ситуацій, зіставлення, порівняння, узагальнення основних граматичних, лексичних, літературних категорій тощо [4, с. 11].

Наведемо приклад організації та проведення роботи над авторським евристичним завданням - телепрезентацією у рамках дисципліни «Іноземна мова».

У нашому дослідженні телепрезентація розглядається, з одного боку, як вид евристичного завдання, метою якого є пошук, аналіз суб'єктивно нової для студента інформації іноземною мовою (як правило професійного спрямування) з подальшим записом усної доповіді на відеокамеру та презентацією її «широкому загалу»; з іншого боку – засіб діагностики, контролю та оцінювання результатів пізнавально-творчої діяльності студентів, що надає можливість достатньо об'єктивно виміряти швидкоплинну усну доповідь за допомогою чітко визначених контрольно-діагностичних критеріїв, завдяки «фіксації» її форми у вигляді відеозапису та можливості не однократного перегляду пізнавально-творчого продукту студента [5].

Роботу над телепрезентацією було організовано поетапно. Насамперед студенти ознайомлювалися з взірцями публічних доповідей іноземною мовою, укладених провідними науковцями, викладачами, аспірантами, магістрантами, студентами із електронної бази даних кафедри іноземних мов Сумського державного університету. Також студенти ознайомлювалися з комплексом контрольно-діагностичних критеріїв для всебічного та об'єктивного оцінювання публічного виступу [6, с. 247-248], на їх основі аналізували запропоновані роботи, відшукували недоліки, допущені помилки, корегували їх. Процес підготовки студентів до публічного виступу було підкріплено виконанням спеціальних евристичних вправ на формування умінь аналізувати, систематизувати, класифікувати інформацію тощо.

На першій стадії роботи студенти мали можливість вибрати, переформулювати тему публічного виступу або формулювати власну у рамках загальної тематики, запропонованої викладачем. Доповідь могла мати суто теоретичний або дослідно-експериментальний характер.

Наступний крок передбачав самостійне обмірковування теми, складання попереднього плану виступу, ознайомлення з науковою літературою з означеної проблеми та вибір джерел, що достатньо повно розкривають вибрану тему.

Основним компонентом евристичної діяльності був письмовий виклад матеріалу іноземною мовою відповідно до складеного плану з урахуванням логіки викладення думок, термінологічної чіткості. Увага студентів зверталася на те, що наукова доповідь має містити такі композиційні частини, як вступ, головну частину, висновки.

У процесі підготовки і запису телепрезентації наукової доповіді студенти мали можливість заздалегідь проглянути відеоматеріал, проаналізувати його, знайти помилки та усунути їх. Виконання такого виду евристичного завдання, як телепрезентації – гарна нагода для самодіагностики і самовдосконалення. Запис виступу також зручно використовувати для визначення переваг та недоліків створеного продукту, проведення взаємооцінювання і під час кінцевого оцінювання результатів самостійної пізнавально-творчої діяльності студентів.

Враховуючи специфіку усної презентації наукової доповіді, діагностика здійснювалась за такими критеріями: композиційна цілісність (логіка плану, частин виступу, послідовності, вступу і висновків); науковий рівень (ерудиція, аналіз, врахування новизни); зв'язок з життям (врахування нових напрямків); інформативність (на рівні фактів, зв'язків, підходів, висновків); аргументованість (логіка доказів, адекватність прикладів теорії); культура мовлення (правильність, багатство, емоційність, використання ораторських прийомів); техніка мовлення (дикція, інтонація, темпоритм); тривалість виступу (дотримання часових норм відведених на виступ) тощо.

Під час діагностики, контролю й оцінювання усних доповідей студентів англійською мовою, додатково враховувались їх мовні та мовленнєві особливості (правильність вживання граматичних, лексичних, стилістичних одиниць).

Результати оцінювання усної доповіді студентів свідчать про те, що відбувається позитивна динаміка у розвитку когнітивних, креативних, оргдіяльних умінь. Цьому сприяє якісна організація підготовки, виконання та оцінювання евристичного завдання, яка досягається завдяки використанню методичних розробок до підготовки усної англійської доповіді (презентації), розроблених на основі Рекомендацій Ради Європи з мовної освіти.

У ході експерименту встановлено ефективність поєднання евристичного навчання з дистанційним. Так, кількість студентів із творчим рівнем сформованості предметно-методичної компетентності в експериментальній групі (ЕГ) збільшилася на 25 %, інформаційно-комунікативної – на 17,5 %, діагностико-прогностичної – на 5 %, конструктивно-творчої – на 10 %. У контрольній групі (КГ) прирости цих показників виявилися менш суттєвими, відповідно: +15,6 %, +3,9 %, +1,3 %, +5,2 %.

Висновки. Отже, доступні для дистанційного навчання евристичні технології, форми, методи, засоби навчання сприяють якісному, осмисленому засвоєнню навчального матеріалу, підвищують мотивацію студентів-дистантів, розвивають їхні творчі здібності, дозволяють підвищити рівень пізнавально-творчої самостійності, розвивають логічне й евристичне мислення, сприяють активному формуванню професійних компетентностей та творчій самореалізації особистості.

Експериментально доведено, що евристичний характер виконання та діагностики телепрезентації сприяє зануренню студентів-дистантів у пошуково-перетворюючу, конструктивну, креативну діяльність, дозволяє їм зробити якісний перехід від поверхового розуміння своєї професії до більш глибокого та творчого. Відеозапис усного виступу студента, зокрема іноземною мовою надає можливість більш детально проаналізувати освітній продукт, визначити його недоліки і переваги, порівняти з попередніми роботами студента такого ж формату і дослідити навчальне прирощування його пізнавально-творчих здобутків.

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Concept of the state registration of the rights to the land and transactions with the land estates in Russia and the countries of Europe

Abstract: The article deals with the basic matters connected with reforming the state system of registration of the rights to real estate (in particular the land estates and transactions with them) in Russia. The authors of the article give the comparative analysis of registration system in some countries of Europe and the Russian Federation. The authors also come to the conclusion that the state registration of the rights to the land estates and transactions with them admits and proves to be true by the state according to the RF Civil code and connects with origin, restriction, transition or termination of the rights to real estate.

Keywords: state registration, land estate, state real estate register, land cadastre.

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Понятие государственной регистрации прав на землю и сделок с земельными участками в России и странах Европы

Аннотация: В статье рассматриваются основные вопросы, связанные с реформированием государственной системы регистрации прав на недвижимое имущество (в частности на земельные участки и сделки с ними) в России. Проводится сравнительный анализ системы регистрации некоторых стран Европы и Российской Федерации. Обосновывается вывод о том, что государственная регистрация прав на земельные участки и сделок с ними признается и подтверждается государством в соответствии с ГК РФ и связывается с возникновением, ограничением, переходом или прекращением прав на недвижимое имуществом.

Ключевые слова: государственная регистрация, земельный участок, государственный реестр недвижимости, земельный кадастр.

Развивающиеся в последние годы в мире процессы интеграции в области управления земельными ресурсами привели к необходимости понимания широкой общественностью роли земли как источника экономического благополучия стран и народов. В этой связи ключевое значение стало придаваться кадастровым системам во взаимосвязи с системами регистрации прав на недвижимость, которые в совокупности с землеустроительными мероприятиями являются мощнейшими рычагами организации рационального использования и охраны земли в различных странах.

В настоящее время существует несколько разных систем регистрации недвижимости, в каждой из них по-своему решается вопрос о взаимосвязи с кадастром. Эти различия связаны с историческими и экономическими особенностями развития каждой из стран и отражены в организационных структурах кадастра и систем земельной регистрации.

Так, в Швеции и других странах Северной Европы посредством автоматизации осуществлена тесная интеграция двух систем. В этих странах кадастр

постепенно эволюционировал и из простого налогового учета, слабо привязанного к картам, превратился в комплексную систему с высокой степенью надежности.

Во Франции объединение кадастра и земельной регистрации не зашло так далеко. Во-первых, французский кадастр не является всеобъемлющим и не поддерживается в такой мере, как в вышеупомянутых странах. Во-вторых, он обладает меньшей юридической силой и до сих пор является преимущественно фискальным кадастром, не имеющим тесной связи с реестром прав.

В Германии, Австрии, Швейцарии и Нидерландах связь между кадастром и реестром прав на землю чрезвычайно сильна. В этих странах юридические единицы, регистрируемые в реестре земель, полностью соответствуют кадастровым единицам. Благодаря использованию уникальных кадастровых номеров, здесь стало возможным ввести систему регистрации прав собственности, обеспечивающую высокую степень безопасности и надежности.

Совершенно иным путем шло развитие систем регистрации прав на землю в англосаксонских странах. Это не в последнюю очередь было связано с тем, что до недавнего времени в англоязычном мире был почти неизвестен кадастр. Так, в Великобритании главной целью создания и ведения земельного реестра было, во-первых, содействие развитию отношений в сфере частной собственности на землю и недвижимость, а, во-вторых, — стремление облегчить и упростить систему отношений на рынке земли и недвижимости. При этом занесение документов в реестр недвижимости служило лишь целям соблюдения очередности, так как фактическое приобретение прав происходит при заключении договора и передаче подписанных документов. После этого лицо, приобретающее права, может подать заявление о внесении приобретенных им прав в реестр, который, однако, имеет чисто декларативный характер. С течением времени на все большей территории Англии регистрация стала обязательной, и как только собственность регистрировалась, государство становилось гарантом права собственности, занесенного в реестр.

Государственная регистрация земельных прав и сделок с землей признается и подтверждается государством в соответствии с Гражданским кодексом Российской Федерации и связывается с возникновением, ограничением, переходом или прекращением прав на недвижимое имущество [1].

На сегодняшний день представить оборот земельных участков без совершения государственной регистрации просто невозможно. Стоит заметить, что эта процедура есть абсолютно во всех правовых системах и в законодательстве любой страны. Однако все эти страны можно разделить на три типа:

- страны, где требуется государственная регистрация только прав на земельные участки (Германия, Австрия, Швейцария);

- страны, где требуется государственная регистрация только сделок с земельными участками (Франция);

- страны, где законодательство требует регистрировать не только права на земельные участки, но и сделки с ними (к таким странам относится Россия).

Весь оборот с недвижимостью обладает своей спецификой: каждый предмет недвижимости должен иметь индивидуализирующие признаки, а информация о собственниках должна быть зарегистрирована особым способом. Такая учетно-регистрационная процедура является препятствием для сделок с недвижимостью. В связи с этим, мы можем говорить, что при контроле операций с недвижимостью постоянно происходит поиск между «прозрачностью и понятностью процедур, обеспечивающих оборот с недвижимостью» [2, с. 28], и его защитой.

Рассматривая тот факт, что одним из основных принципов действия земельного законодательства считается принцип одной судьбы земельных участков и расположенных на них объектов недвижимости, в соответствии с которым все связанные с земельными участками объекты повторяют судьбу земельных участков, кроме случаев, установленных в законе. Данное положение помогает получать основную информацию о земельном участке, а также о недвижимости, расположенной на нем, и выявить целесообразные виды планирования, использования, защиты и соблюдения требований правового положения в использовании различных видов земель. На основании этого и государственная регистрация должна распространяться на права и ограничения не только земельных участков, но и на объекты, находящиеся на земельных участках, что возможно производить только при действии регистрационного принципа «единого окна».

Государственная регистрация распространяется не только на право на землю как таковую, но и на земельный участок, который представляет собой

особую разновидность недвижимого имущества, и его правовой режим не совпадает с правовым режимом других недвижимых объектов.

Важнейшим признаком, которому должен соответствовать земельный участок для того, чтобы относиться к недвижимости и получить статус объекта зарегистрированного права собственности, заключается в том, что участок должен иметь индивидуализирующие признаки. То есть, должны быть установлены его размеры, границы и месторасположения. Границы расположения определяются в установленном законом порядке, на основании документов, которые выдаются собственнику государственными органами.

Решение суда, которое устанавливает право на земельный участок, является юридическим основанием для его возникновения. Такое основание появляется, например, в результате спора о праве, который передается на рассмотрение в суд, и соответствует положениям ст. 59 ЗК РФ, на основании которой признание права на земельный участок происходит в судебном порядке. В качестве примера можно привести: возникновение права по решению суда может считаться также признанием судом права муниципальной собственности на бесхозный земельный участок (п. 3 ст. 225 ГК РФ, п. 2 ст. 53 ЗК РФ). Правовым основанием для государственной регистрации установленного судом права на участок является решение арбитражного суда или суда общей юрисдикции, которое вступило в законную силу.

Относительно приобретения земельных участков на основаниях, закрепленных в законе, примером может являться переход права собственности на земельный участок в силу приобретательной давности (ст. 234 ГК РФ).

Кроме того, ст. 35 ЗК РФ закрепляет возникновение права собственности по основаниям перехода права собственности на здания, строения, сооружения. В нормах данной статьи закреплено, что при переходе прав собственности на указанные объекты, расположенные на чужом земельном участке, к иному лицу, последнему переходит право на пользование конкретной частью участка, на котором они находятся, на тех же условиях и в том же объеме, что и предыдущий собственник. Если право собственности на здания, строения, сооружения переходит к нескольким сособственникам, то пользование землей будет определяться при учете доли каждого в праве собственности на эти объекты или устанавливаться судом.

В п. 2 ст. 15 ЗК РФ закреплено право физических и юридических лиц на одинаковое право приобретения земельных участков в собственность, т. е. равные права по приватизации земельных участков [3, с. 16]. В случае отказа органов регистрации в совершении соответствующих действий, субъекты могут обратиться в суд с иском об обжаловании их действий.

Дела такого типа, которые рассматриваются в суде, можно разделить на три вида:

- 1) споры о праве, которое зарегистрировано (сделке);
- 2) об обжаловании отказа в государственной регистрации права (сделки);
- 3) об обжаловании неправомерных действий (бездействий) лиц, осуществляющих свои должностные функции в учреждениях юстиции.

Государственная регистрация считается единственным доказательством наличия зарегистрированного права.

Сама государственная регистрация формально обеспечивающая государственную, в том числе судебную, защиту прав лица, которые возникают из договорных отношений, объектом которых является недвижимость, призвана лишь подтвердить от государства юридические основания конкретных, подтверждающих право. Этим государственная регистрация устанавливает определенные гарантии выполнения субъектами обязательств надлежащим образом, а значит укрепляет и стабилизирует гражданский оборот в целом.

Законом установлены причины отказа в государственной регистрации права в государственном органе. Данный перечень причин является исчерпывающим.

Таким образом, государственная регистрация прав на земельные участки и сделок с ними признается и подтверждается государством в соответствии с ГК РФ и связывается с возникновением, ограничением, переходом или прекращением прав на недвижимое имущество. Сущность данного юридического акта которого состоит, прежде всего: во-первых, в том, что только после осуществления этой процедуры право на земельный участок считается возникшим (п. 2 ст. 8 ГК РФ). Без осуществления государственной регистрации права на земельный участок (а в некоторых случаях и сделок с ним) даже при имеющемся акте государственного или муниципального органа, договоре или судебном решении, закрепляющим право на участок, нет юридических оснований для реализации субъектом своих прав; во-вторых, государственная регистрация это

единственное доказательство существования зарегистрированного права; в-третьих, зарегистрированное право на земельный участок может оспариваться только в суде. Это положение по сути является одной из закрепленных в законе гарантий надежности зарегистрированного права на земельный участок. Можно говорить, что если у организации или гражданина при наличии документы подтверждающие произведенную регистрацию его права на земельный участок, то оно прекращается или признается недействительным только по решению суда; в-четвертых, из ст. 26 ЗК РФ вытекает положение, что права на земельные участки должны быть удостоверены документами, которые выдаются в соответствии с законом, т. е. на основании произведенной регистрации права.

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Sargsyan Zhanna V.

The solution of chemical tasks as one of the ways to induce analytical thinking of students.

3. Electrolysis of water solutions of electrolytes

Abstract: Teaching of natural subjects stimulates imagination of pupils, develops understanding and logical thinking, enriches intellect, inner spiritual world and establishes appropriate conditions for the creation and regulation of human relationships. Task resolution develops pupil's creative thinking and skills, favors their improvement, elaborates skills to put forward and discuss various hypotheses. In this article tasks on electrolysis are discussed, the solution of which requires preliminary analysis of data and consideration of various possible solutions.

Keywords: electrolysis, analysis of electrode processes, schemes of electrolysis of salts of metals with medium activity.

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Решение химических задач как один из способов повышения аналитического мышления учащихся.

3. Электролиз водных растворов электролитов

Аннотация: Обучение естественным предметам стимулирует воображение, учащихся, развивает разум, логику, обогащает интеллект, внутренний духовный мир, создает благоприятные условия для создания и регулирования человеческих взаимоотношений. Решение задач развивает у учащихся творческие навыки и благоприятствует их усовершенствованию, формирует творческое мышление, умение выдвигать и обсуждать различные гипотезы. В данной статье рассмотрены задачи по электролизу, решение которых требует

предварительный анализ данных и рассмотрение различных возможных вариантов решения.

Ключевые слова: электролиз, анализ электродных процессов, схемы электролиза растворов соли металлов средней активности.

Для стимуляции творческой деятельности учащихся и оказания им помощи в процессе развития исследовательской деятельности в процессе обучения естественным наукам большую роль играют расчетные задачи. Обучение этим предметам создает почву для применения полученных учащимися знаний, позволяет использовать межпредметные связи в реальной жизни, при решении конкретных задач, предвидеть пути использования этих знаний и предлагать варианты их практического применения. Как известно, обучение естественным предметам стимулирует воображение детей, развивает разум, логику, обогащает интеллект, внутренний духовный мир, создает благоприятные условия для создания и регулирования человеческих взаимоотношений. Исходя из этого, целесообразно обучение естественным предметам, в том числе и обучение химии, с уровня изучения теоретических вопросов перевести на другой, а именно на уровень выявления межпредметных связей и их практического применения [1-3]. По этому не зря решение задач по естественным предметам, в том числе и по химии, предусмотрено школьной программой для всего изучаемого курса. Не секрет, что создание и решение любой химической задачи базируется на знаниях математики, физики, иногда и биологии, что и является подтверждением межпредметных связей. При обучении химии межпредметные связи можно выявлять при обсуждении различных тем, связывая изучаемый материал и с биологией, и с физикой, и с географией и т.д. С физикой интегрирована тема “электролиз”, имея ввиду электролиз как расплавов, так и водных растворов электролитов [1,4]. Однако, по программе законы Фарадея на уроках химии не рассматриваются и задачи с применением этих законов не решаются. По программе тема “электролиз”, предусмотренная для 9-го класса, достаточно интересна и сложна [5,6].

Учащиеся особенно затрудняются при решении задач по электролизу водных растворов солей металлов средней активности. Сложность решения таких задач в первую очередь обусловлена тем, что при электролизе водных растворов солей этих металлов вместе с катионами металлов на инертном

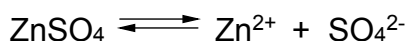
катоде восстанавливаются также молекулы воды. Эти процессы необходимо рассматривать каждое в отдельности и схему электролиза для каждого составлять отдельно. Составлять эти схемы и использовать их в суммарной форме крайне ошибочно и совершенно недопустимо. Рассмотрим ход решения одной такой задачи на примере соли кислородсодержащей кислоты

Задача 1

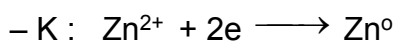
322g 50 %-ного водного раствора сульфата цинка подвергли электролизу инертными электродами. Электролиз прекратили в тот момент, когда количество выделившегося на инертном катоде вещества было достаточно для выделения 1 г водорода при взаимодействии с 36,5 %-ным раствором HCl. А количество выделившегося на аноде вещества было достаточно для полного горения 3,92 л (н.у.) пропана. К оставшемуся после электролиза раствору прибавили 20%-ый раствор гидроксида натрия до завершения всех возможных реакций. Можно оформить разные вопросы, а именно:

1. Какую массу (г) имеет выделившийся на аноде вещество?
2. Какую массу (г) имеет раствор в момент прекращения электролиза?
3. Определить массу (г) израсходованного раствора NaOH.
4. Определить массу (г) раствора после завершения всех возможных реакций? и т.д.

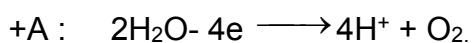
В первую очередь необходимо составить схемы электролиза водного раствора сульфата цинка. В растворе $ZnSO_4$ практически полностью диссоциирован:



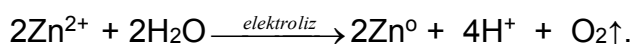
Исходя из теоретически обоснованных закономерностей катодных и анодных процессов электролиза с применением инертных электродов, на катоде происходит восстановление Zn^{2+} -ионов:



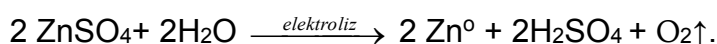
В растворе, а именно в анодном пространстве накоплены сульфат-ионы, которые не участвуют в электродных процессах и на инертном аноде происходит анодное окисление молекул воды:



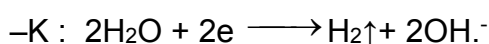
Уравнивая число электронов при помощи соответствующих коэффициентов и суммируя схемы полуреакций обеих электродных процессов, получаем ионное уравнение схемы электролиза:



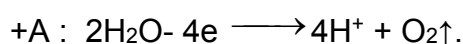
Учитывая наличие в растворе сульфат-ионов, получаем первую схему электролиза водного раствора ZnSO_4 в молекулярной форме:



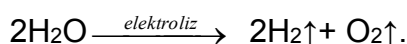
Однако, в ряду электрохимической напряженности металлов цинк расположен между магнием и водородом, следовательно, вместе с Zn^{2+} -ионами на катоде одновременно восстанавливаются и молекулы воды:



И поскольку в растворе имеются анионы кислородсодержащей кислоты, в то же время на инертном аноде опять происходит анодное окисление молекулы воды:

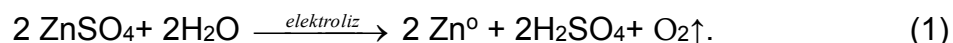


Как известно, если в катодных и анодных процессах участвуют молекулы воды, то происходит электролиз воды, что можно представить следующей схемой:

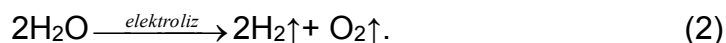


Таким образом, при электролизе водного раствора сульфата цинка с применением инертных электродов, одновременно протекают два процесса:

1. Электролиз водного раствора сульфата цинка:



2. Электролиз воды:



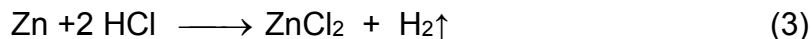
После такого анализа уже можно переходить к решению задачи:

Решение:

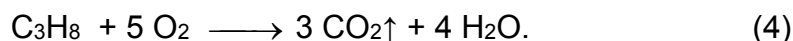
В исходном 322 г 50 %-ном растворе сульфата цинка определим массу и количество соли: $m(\text{ZnSO}_4) = \frac{322 \cdot 50}{100} = 161$ г, следовательно: $n(\text{ZnSO}_4) = 1$ моль, ($M(\text{ZnSO}_4) = 161$ г/моль).

Выделившееся на катоде вещество - это цинк, при взаимодействии которого с 36,5 %-ным раствором соляной кислоты выделился 1 г водорода; т.е.

$$n(\text{H}_2) = \frac{1}{2} = 0,5 \text{ моль}, \quad (M(\text{H}_2) = 2 \text{ г/моль}):$$



Из уравнения реакции следует, что для выделения 0,5 моль водорода в реакцию с HCl должен вступать столько же, т.е. 0,5 моль цинка, выделенный на катоде в процессе электролиза по первой схеме (1). Исходя из этой схемы, выделение 0,5 моль цинка на катоде сопровождается электролитическим разложением 0,5 моль соли ZnSO₄. В растворе одновременно образуется такое же количество серной кислоты, а на аноде выделяется 0,25 моль кислорода. По условию задачи выделенный на аноде кислород был использован для полного горения 3,92 л (н.у.) пропана:



$$\text{Определим количество пропана: } n(\text{C}_3\text{H}_8\text{O}_2) = \frac{3,92}{22,4} = 0,175 \text{ моль}.$$

Из уравнения реакции горения пропана видно, что для полного его горения требуется в 5 раз больше количество кислорода, т.е. $n(\text{O}_2) = 5 \cdot n(\text{C}_3\text{H}_8) = 5 \cdot 0,175 = 0,875$ моль, в том случае, когда по первой схеме (1) электролиза раствора сульфата цинка выделено всего 0,25 моль кислорода. Это свидетельствует о том, что остальное количество, а именно $0,875 - 0,25 = 0,625$ моль кислорода было выделено по (2) схеме, т.е. при электролизе воды. Следовательно, для выделения 0,625 моль кислорода электролизу подвергалось вдвое больше, т.е. $n(\text{H}_2\text{O}) = 2 \cdot n(\text{O}_2) = 2 \cdot 0,625 = 1,25$ моль воды и одновременно было получено такое же количество H₂. Таким образом, выделенное на аноде вещество – кислород, масса которого составляет:

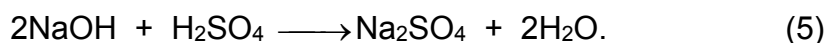
$$m(\text{O}_2) = n(\text{O}_2) \cdot M(\text{O}_2) = 0,875 \cdot 32 = 28 \text{ г} \quad (M(\text{O}_2) = 32 \text{ г/моль}).$$

Анализ данных показывает, что после электролиза водного раствора сульфата цинка в растворе содержится 0,5 моль неэлектролизованной соли и такое же количество образовавшегося в ходе электролиза серной кислоты и масса этого раствора составляет:

$$m(\text{p-ра}) = 322 - 0,5 \cdot 65 (\text{Zn}) - 1,25 \cdot 18 (\text{H}_2\text{O}) - 0,25 \cdot 32 (\text{O}_2) = 259 \text{ г}^*.$$

При добавлении к этому раствору необходимого для завершения всех возможных реакций количества раствора едкой щелочи, естественно, будут протекать несколько реакций, а именно:

1. Реакция нейтрализации образовавшегося в ходе электролиза и имеющегося в растворе серной кислоты:

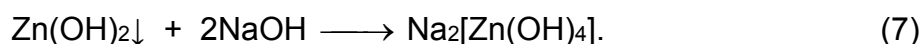


В растворе после электролиза содержится 0,5 моль H_2SO_4 , и по уравнению $n(\text{NaOH}) = 2 \cdot n(\text{H}_2\text{SO}_4) = 2 \cdot 0,5 = 1$ моль, значит только для нейтрализации серной кислоты необходимо прибавить к раствору 1 моль NaOH . Поскольку из содержащихся в исходном растворе 1 молей ZnSO_4 электролизу подверглись 0,5 моль, т.е. половина ее, значит в растворе остались столько же, т.е. 0,5 моль соли, которая также должна вступать в реакцию с NaOH .

2. Реакция взаимодействия ZnSO_4 с NaOH :



Однако $\text{Zn}(\text{OH})_2$ - это амфотерный гидроксид и под действием избытка щелочи происходит его растворение, снова получается бесцветный и прозрачный раствор, что и является одной из возможных реакций протекающих со щелочью:



Суммируя последние два уравнения реакций, получается суммарное уравнение реакции взаимодействия сульфата цинка с избытком NaOH :



Исходя из уравнения последней реакции $n(\text{NaOH}) = 4 \cdot n(\text{ZnSO}_4) = 4 \cdot 0,5 = 2$ моль, значит для взаимодействия с ZnSO_4 необходимо еще 2 моль NaOH .

Таким образом для нейтрализации H_2SO_4 и взаимодействия с ZnSO_4 необходимо к раствору прибавить 3 моль NaOH , которое составляет:

$$n(\text{NaOH}) = n \text{ NaOH} \cdot M(\text{NaOH}) = 3 \cdot 40 = 120 \text{ г}; \quad (M(\text{NaOH}) = 40 \text{ г/моль}).$$

Массу 20 %-ного раствора NaOH , содержащей такое количество щелочи, можно определить по формуле:

$$m(\text{р-ра NaOH}) = \frac{120 \cdot 100}{20} = 600 \text{ г (20 \% -ного р-ра NaOH)}.$$

И наконец, после прибавления 600 г 20 %-ного р-ра NaOH к раствору подвергнувшегося электролизу ZnSO₄, масса полученного раствора составляет:
 $m(\text{р-ра}) = 322 + 600 - 0,5 \cdot 65 (\text{Zn}) - 1,25 \cdot 18 (\text{H}_2\text{O}) - 0,25 \cdot 32 (\text{O}_2) = 859 \text{ г}^*$
 Ответы: 1. $m(\text{O}_2)$ на аноде = 28 г 2. $m(\text{р-ра}) = 259 \text{ г}$ 3. $m(\text{р-ра NaOH}) = 600 \text{ г}$.
 4. $m(\text{р-ра}) = 859 \text{ г}$.

* **Задачи составлены таким образом, чтобы все ответы имели целочисленные значения.**

Рассмотрим ход решения еще одной задачи на примере соли одной, но уже бескислородной кислоты. Для глубокого представления и понимания протекающих процессов попробуем ответить на нескольких вопросов.

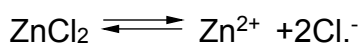
Задача 2

450 мл ($\rho = 1,024 \text{ г/мл}$) 11,07 %-ного раствора хлорида цинка подвергли электролизу инертными электродами. Электролиз прекратили, в тот момент когда на инертных электродах было выделено имеющий 59,5 г/моль среднюю молярную массу 6,72 л (н.у.) газовой смеси. Учитывая, что образовавшееся в ходе электролиза труднорастворимое вещество полностью удалено из раствора в виде осадка, определить:

1. Массу (г) выделившегося на катоде твердого вещества.
2. В момент прекращения электролиза какая масса соли (г) содержится оставшемся растворе?
3. В момент прекращения электролиза какую массу (г) имеет раствор?
4. Определить массовую долю (%) соли, в оставшийся после электролиза растворе.
5. Во сколько раз количество Zn²⁺ ионов, выделенное из раствора ZnCl₂, различается от Zn²⁺ ионов, оставшихся в растворе после электролиза?
6. Какой объем (мл) 1М раствора NaOH требуется для полного растворения выделившегося из раствора труднорастворимого вещества?

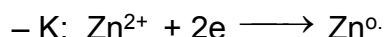
Анализ

Прежде всего необходимо составить схему (схемы) электролиза водного раствора хлорида цинка. В растворе хлорид цинка практически полностью диссоциирован:



В катодном пространстве раствора накапливаются Zn²⁺, а в анодном - Cl⁻-ионы. Исходя из теоретически обоснованных общеизвестных закономер-

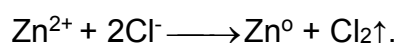
ностей катодных и анодных процессов электролиза с применением инертных электродов, на катоде опять происходит восстановление Zn^{2+} -ионов:



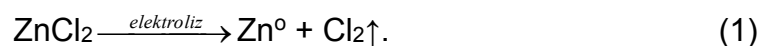
Однако, в отличие от сульфата цинка в анодном пространстве накоплены анионы бескислородной кислоты и по этому на аноде происходит окисление хлорид-ионов:



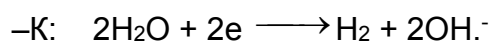
Суммируя оба электродных процесса, получаем ионное уравнение схемы электролиза $ZnCl_2$:



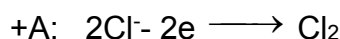
В молекулярной форме это будет:



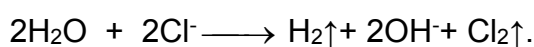
Однако, исходя из известных теоретических соображений, одновременно вместе с Zn^{2+} -ионами на катоде восстанавливаются также молекулы воды:



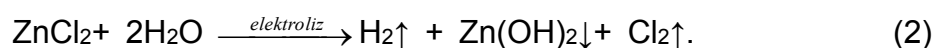
И, поскольку, в растворе имеются анионы бескислородной кислоты, то в отличие от сульфата цинка, на инертном аноде в то же время происходит анодное окисление не молекул воды, а хлорид-ионов:



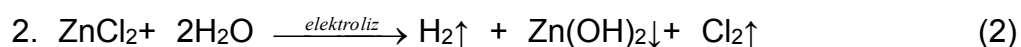
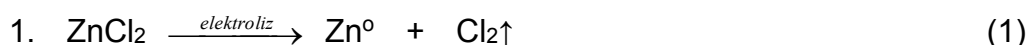
Суммируя схемы обеих электродных процессов, получится вторая схема электролиза водного раствора хлорида цинка инертными электродами в ионной форме:



Представим эту схему в молекулярной форме:



Таким образом, при электролизе водного раствора хлорида цинка инертными электродами одновременно, независимо друг от друга, протекают два процесса:



Как уже отмечалось, эти процессы необходимо рассматривать каждый в отдельности и использовать их в виде суммарной схемы недопустимо. После

составления схем электролиза водного раствора хлорида цинка, представим расчетную часть решения этой задачи.

Решение:

Определим массу исходного раствора $ZnCl_2$: $m = v \cdot \rho = 450 \cdot 1,024 = 460,8$ г.

В 11,07 %-ном растворе хлорида цинка определим массу и количество соли: $m(ZnCl_2) = \frac{460,8 \cdot 11,07}{100} = 51,068$ г, следовательно, округлив значение массы

соли до целых значений определим ее количество:

$$n(ZnCl_2) = \frac{51}{136} = 0,375 \text{ моль (M(ZnCl}_2\text{)=136 г/моль).}$$

Определим количество выделившихся на электродах газовой смеси:

$$n(H_2 \text{ и } Cl_2) = \frac{6,72}{22,4} = 0,3 \text{ моль.}$$

По условию задачи средняя молярная масса выделившейся на инертных электродах 0,3 моль газовой смеси равна 59,5 г/моль. Исходя из этого определим количество каждого компонента в этой смеси. Предположим, что в выделившихся на двух электродах 0,3 моль смеси газов содержится a моль хлора, а остальные $(0,3 - a)$ моль это водород. Исходя из формулы определения средней молярной массы газовой смеси вытекает, что:

$$M_{\text{ср}} = \frac{\nu(Cl_2) \cdot M(Cl_2) + \nu(H_2) \cdot M(H_2)}{\nu_{\text{см}}} \quad 5,95 = \frac{71 \cdot a + 2 \cdot (0,3 - a)}{0,3}$$

Решая это уравнение получим $a = 0,25$, следовательно $0,3 - a = 0,05$. Т.е. в выделившихся на инертных электродах 0,3 моль газовой смеси входят 0,25 моль хлора и 0,05 моль водорода. Однако водород в ходе электролиза выделяется только по (2) схеме, из которого видно, что одновременно, вместе с водородом на аноде выделяется такое же количество, т.е. 0,05 моль хлора, а в растворе образуется столько же $Zn(OH)_2$. Следовательно, по этой схеме электролизу подверглось 0,05 моль $ZnCl_2$, а из этого вытекает, что оставшая часть хлора, в количестве $0,25 - 0,05 = 0,2$ моль, выделилась по первой схеме: Это свидетельствует о том, что по этой схеме электролизу подверглась 0,2 моль $ZnCl_2$ и на катоде выделилась столько же, т.е. 0,2 моль металлического цинка. То есть, из имеющихся в растворе 0,375 моль $ZnCl_2$ в этих двух процессах электролиза участвовали $0,2 + 0,05 = 0,25$ моль, а ос-

тальные $0,375 - 0,25 = 0,125$ моль $ZnCl_2$ остались в растворе. Следовательно, выделенное из раствора $ZnCl_2$ количество Zn^{2+} -ионов различается от оставшихся в растворе после электролиза Zn^{2+} -ионов ровно в два раза:

$$0,25 : 0,125 = 2 \quad (\text{вопрос 5}).$$

Определим массу оставшегося в растворе $ZnCl_2$:

$$m(ZnCl_2) = 0,125 \cdot 136 = 17 \text{ г} \quad (M(ZnCl_2) = 136 \text{ г/моль}) \quad (\text{вопрос 2}).$$

На катоде выделились 0,05 моль водорода и 0,2 моль цинка, масса последнего составляет: $m(Zn) = 0,2 \cdot 65 = 13 \text{ г}$, ($M(Zn) = 65 \text{ г/моль}$) (вопрос 1).

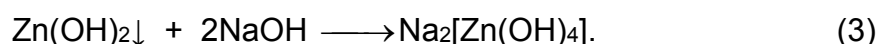
Образовавшееся при электролизе труднорастворимое вещество, которое полностью удалено из раствора в виде осадка, это гидроксид цинка, масса которого составляет: $m(Zn(OH)_2) = 0,05 \cdot 99 = 4,95 \text{ г}$; ($MZn(OH)_2 = 99 \text{ г/моль}$).

Определим массу раствора в момент прекращения электролиза:

$$m(\text{р-ра}) = 460,8 - m(Zn) - m(Cl_2) - m(H_2) - m(Zn(OH)_2) = 460,8 - 0,2 \cdot 65 - 0,25 \cdot 71 - 0,05 \cdot 2 - 0,05 \cdot 99 = 460,8 - 13 - 17,75 - 0,1 - 4,95 = 425; \quad m(\text{р-ра}) = 425 \text{ г} \quad (\text{вопрос 3}).$$

В момент прекращения электролиза в растворе содержится 17 г $ZnCl_2$, массовая доля которого в растворе будет: $\omega(ZnCl_2) = \frac{17}{425} \cdot 100\% = 4\%$ (вопрос 4).

При рассмотрении электродных процессов было показано, что единственное труднорастворимое вещество, которое образуется в процессе электролиза, это $Zn(OH)_2$ (2), который будучи амфотерным взаимодействует с избытком щелочи, образуя растворимые гидроксокомплексные соединения по уравнению реакции:



Исходя из уравнения этой реакции $n(NaOH) = 2 \cdot n(Zn(OH)_2) = 2 \cdot 0,05 = 0,1$ моль, значит для взаимодействия с $Zn(OH)_2$ требуется 0,1 моль NaOH, для чего необходимы 100 мл 1 М раствора гидроксида натрия.

Ответы: 1. $m(Zn) = 13 \text{ г}$; 2. $m(ZnCl_2) = 17 \text{ г}$ 3. $m(\text{р-ра}) = 425 \text{ г}$
4. $\omega(ZnCl_2) = 4\%$, 5. Отношение Zn^{2+} -ионов = 2; 5. $V(\text{р-ра NaOH}) = 100 \text{ мл}$.

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Relationship of Critical Thinking with Competence-based Approach in Learning Calculus

Abstract: Here has been analyzed a topical problem for university didactics concerning formation of critical thinking (CT) in students in the process of modernization of higher education. There has been made comparison of properties of both ordinary and critical thinking. Special attention is given to the relationship between CT and competence-based approach in learning Calculus. A model of CT formation in students has been presented and detailed consideration given to pedagogic and didactic conditions for CT formation.

Keywords: critical thinking (CT), competence-based approach, Calculus learning.

The change in economic and social conditions within society as well as the latest achievements of science and technology do pose substantial challenges to the reasoning capacity of individual specialist. Thinking of present day university degree specialist is a complex system which includes image-intuitive, logical, scientific, esthetic, economic, ergonomic, managerial, communicative and critical thinking.

Individual specialist is supposed to formulate, develop and investigate mathematical models of technical or economic objects and processes. Of great importance is the ability of individual specialist to make proper selection of mathematical apparatus for solving of output problem and its effective application in analyzing and interpreting obtained results. Similarly, availability of modern information technologies and their introduction into manufacture modifies overall professional activity of individual specialist. This necessitates skills in selecting appropriate software and its application in the solution of professional tasks; critical approach to selection of required information for carrying out research and analyzing results.

What makes formation of critical thinking topical is the fact that in modern society individual specialists are supposed to be able to adjust quickly to the present professional activity, modify and improve the basis of individually acquired

knowledge, and find ways for solution of professional and social tasks in unconventional situations.

In a democratic society it is of vital importance for students to develop habits of adequate interpretation of phenomena taking place in their surrounding reality and be able to select optimal modes of behavior in concrete situations. This is why the problem of CT formation in college students is so urgently topical.

Higher education impacts human psyche to a great extent. Given favorable conditions during the period of their studies, there is observed in college students an overall development at all levels. Direction of human mind is determined, i.e. a formation of think storage is observed, which characterizes professional orientation of individuals. For this reason the development of thinking abilities in students, including CT, appears to be one of the fundamental tasks of higher professional education.

The idea of development of CT belongs to prominent 20th century American psychologists V. James and John Dewy. Later CT theory has been worked on by a number of other scholars who characterized it as a special property of personality, a habit of cognitive activity, an individual and socially significant phenomenon, which is of top priority in the field of education.

However, in pedagogic practice there have been separated a number of contradictions:

- between the need of specialists capable of CT and decision making responsibility on one hand and the inadequately worked out mechanisms for CT formation in students on the other;
- between the personal need of effective information processing and the deficiency of CT;
- between the existing modular programs for development of CT in students and the underdeveloped and inadequately elaborated scientific recommendations for their implementation in institutes of higher learning [5].

Thinking is a process of abstract and generalized way of getting cognizant with the surrounding world. It processes and transforms information which is contained in sensations and perceptions as the result of thinking activity is verified and applied in practice [3].

CT is one of the types of thinking. In fact it is an approach to thinking, which boils down to application of evidence-based common sense when certain assertion is

to be determined as true or not. It does not refer to the way of reaching assertions but rather to their appreciation. Another definition of CT determines it as the capability to make decisions based on good arguments [6]. *J. Browse and D. Wood define critical thinking as reasonable reflexive thinking allowing for objective consideration, logical acts done in accord with common sense; also enabling the subject of CT to regard things from various points of view and relinquish his/her prejudice for the purpose of reaching new possibilities for resolving problems.* Critical thinking which is capable of bringing forth novel ideas and possibilities is of vital significance in resolving problems [3].

Properties of CT are:

- formation of positive experience derived of everything related to human individual;
- formation of one's own, responsible thinking;
- argument-based thinking (convincible arguments allow for well-grounded decision making);
- versatile thinking (occurs through the ability to regard certain phenomenon from various points);
- individual thinking (shapes individual cultural readiness to operate with information);
- social thinking (work is effected in pairs, groups; discussion being the basic instrumentality).

Among the key habits needed in CT are: ability to analyze and generalize, interpret, draw conclusions and evaluate. CT is a complex integral quality of individual personality, a conglomerate of motivational, cognitive, activity-based and reflexive components assuring the processes of self-cognizance, self-education and self-realization [6].

M. Lipman [10] shows the distinguishing features of CT with regard to common thinking (Table 1). Unlike common thinking, CT replaces vagueness, inaccuracy and indefiniteness in reasoning with clarity, accuracy and correctness in expressing opinions. Inconsistency, poor logic, superficiality and banality give place to consistency, sound logic, depth and significance of CT [13, c. 7].

Table 1. Comparison of properties of common and critical thinking

Characteristic properties of common thinking	Characteristic properties of critical thinking
Trust in information	Permitting various interpretation of information
Unification of notions by association	Understanding principles and mechanisms
Supposition with no sufficient grounds for it	Development of hypotheses
Random grouping of facts	Well-grounded classification of facts and phenomena
Stating poorly grounded opinion and/or reasoning through intuitive conjecture	Stating well-grounded opinion
Rash preference	Balanced, assessing reasoning
Formulation of judgment without support of criteria	Formulation of judgments based on criteria
Spontaneous formulation of conclusions	Logical formulation of conclusions resulting from critical analysis of facts and phenomena

As R. U. Paul observes [5] in order for students to perform well in learning various subjects the underlying curriculum should be developed in such way as to facilitate not only the acquisition of the teaching input, but give impetus to the development of rational qualities of thinking, critical thinking included, as well. In other words learning to think in the context of each educational discipline means to internalize that discipline.

Calculus is one of the fundamental disciplines in the curriculum of technical and economic institutes of higher learning. Learning Calculus facilitates the development of such properties of CT as logical reasoning, operative handling, breadth, flexibility, unconventionality. Study of mathematical disciplines enhances intellectual development of individual, develops spatial imagination and notions, builds algorithmic culture, forms skills for finding out causal relations helps in formulating assertions – all these qualities needed in future professional activity. Without successful acquisition of mathematical disciplines there is no chance of mastering special disciplines. Many technical and economic tasks employ various mathematical models. Moreover, learning mathematical disciplines is accompanied

by some hardships for students, which is due to the objective complexity and the high rate of abstraction in the process of acquiring taught input. Therefore, the process of learning should address formation of CT. Its organization is to facilitate learning and acquisition of taught material on behalf of students, and develop professional competence in the future specialist. According to some researchers [9], among the various methods of learning, which enhance the formation of CT, may be referred the following methods: methods of problem oriented learning, logical modes, research work, etc. In planning and conducting classes (lectures, practical and lab classes), all of which are directed at forming CT, it is possible to apply the reference models of American pedagogues J. Stele, C. Meredith and Ch. Temple. In that particular case training undergoes different stages, which are developed in detail by S.I Zaire-Beck [1]: 1. Review: upgrading of existing knowledge; arousing interest in receiving new information. 2. Assimilation: receipt of new information; correcting students according to the goals of training. 3. Reflection: thinking, origination of new cognition; setting new educational/learning goals.

One of the fundamental methods of learning, which enable formation of CT is found in research work. In present day conditions a point of special importance in student training is the problem related to modeling of real processes. Notions such as models and modeling are widely used in the sphere of education, research, designing and drafting. Research work allows students to reveal their individuality, creative potential and CT, which are an evidence of the level of preparedness for professional activity and ensuing effective use of acquired knowledge, skills and habits. Research done by many scientists supports the conclusion that in order to enhance the quality of mathematical background of future specialists, as well as of their thinking, it is necessary that their education be directed toward application and professionalism. This being the target of theory and practice in learning mathematics, necessitates planning of classes, in which are taught practical application tasks and real processes and phenomena are modelled. It in turn enables development of properties of thinking, which result in the formation of the following skills in students: separating substantial factors within certain process and ignoring others; fragmentation of task condition into parts; ability to formalize condition followed by interpretation of problem solution.

The concept of CT is combined with competence-based approach. An analysis of goals and tasks made within the framework of competence-based approach and

CT development in learning Calculus at institutes of higher learning shows certain similarity between them. Effectiveness of CT development in students during their studies of mathematics is ensured by: formation of cognitive motives which stimulate thinking in students; development of learning and research medium; integration of contemporary information technologies with active forms and methods of training which contribute to CT development of students and enhance their cognitive interests.

Training in Critical Thinking is based on taxonomy of pedagogical goals, which has been developed in 1956 by a group of American psychologists under the leadership of B.Bloom [8]. Taxonomy means classification and systematization of objects which is constructed according to their natural relationship and uses for objects' descriptions categories that are positioned in sequence of progressive increment of complexity.

Bloom distinguishes 6 categories of learning goals: knowledge, understanding, application, analysis, synthesis, assessment. The last three levels- those of analysis, synthesis and assessment are related to CT which is referred to by M. Thomas and A. Manzo as *higher order thinking*.

Consider the following *example* of goal formulation and generating of questions and tasks in accordance with taxonomy of cognitive levels of *Bloom*.

Discipline: *Calculus*.

Goal: to develop skills in students for finding the arc length from planar curve by means of certain integral.

1. *Knowledge*: Which is the formula used in calculating the length of arc from planar curve?

2. *Understanding*: In how many ways can the curve be assigned? Write down the formulae.

3. *Application*: Find the length of an arc from the curve $y = \ln(1-x^2)$, if $0 \leq x \leq \frac{1}{2}$.

4. *Analysis*: Determine the reasons for using the formula $l = \int_a^b \sqrt{1+y'^2(x)} dx$.

5. *Synthesis*: Where can we expect changes to occur, if we change the interval within which the variable x is altered?

6. *Assessment*: Exchange your work with your partner and check for his/her solution of the problem. Say whether your partner has understood how to find the length of arc from planar curve, assigned by Cartesian equation. Make attempt to give reasonable argument for your conclusion [2].

Table 2. Basic questions and assignments in Bloom's taxonomy

<p>1. KNOWLEDGE (reproduction of information)</p>	<p>Who/Which...? How many/much...? When...? Describe... Name... Give definition... Make a list... Calculate... Retell (reproduce)... Make assertion...</p>
<p>2. UNDERSTANDING (translation, interpretation and extrapolation)</p>	<p>What does it mean...? Is this the same as...? What restrictions would you add...? Which is the most probable ...? Which are the exclusions...? What facts support this...? Say in your own words... Give a single word for... Show... Make a plan... Explain what happens... Explain the table, diagram... Translate information from image into verbal type (describe in words) and vice versa... Sum up what you said/read... Compare... Find the "pair"... Put in opposition... Rephrase...Distinguish (learn to discriminate)...</p>
<p>3. APPLICATION (in a situation which is unfamiliar to students or with regard to some other viewpoint)</p>	<p>What are the possible results/consequences...? What would happen if...? To what extent/how did the situation changed...? Try to predict (foresee) what it would be like if... Choose... Classify... Present in tabular/graphical way... Solve/resolve... Illustrate by your own examples... Choose the statement that best refers/ applies to....Explain...</p>
<p>4. ANALYSIS (fragmentation in parts, forms)</p>	<p>What are the prerequisites...? What conclusion can be drawn...? What is the function of ...? Which ideas support the conclusions...? Which ideas are/ are not applicable in...? What is the relationship between...? What are the motives/facts/ conditions...? Why...? What is the main/secondary idea...? Which assertion is/is not related to...? The least important points are... This assertion implies ...</p>
<p>5. SYNTHESIS (combining elements into schemes which do not replicate previous ones)</p>	<p>How would you check...? What if....? Develop... Suggest an alternative... Construct...Solve the problem... Plan... Formulate a rule/theory ... Select... Elaborate your thought... Predict... Imagine that ...</p>
<p>6. ASSESSMENT</p>	<p>Which is more important, and which is less important/</p>

(in accordance with certain criteria, clarification why it is assessed so)	logical/to the point/ corresponding to ...? How has it been changed...? To what extent has it changed...? Find the mistake... Evaluate the importance of ... Defend your position/point... Give quantitative and qualitative assessment (observe and draw conclusion)... Share a critical attitude...
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Students possess multidirectional store of knowledge and some social experience; they are capable of acquiring integrative knowledge and skills, which are transformed into competencies provided there are motivational mechanisms and a positive attitude to active work. The teacher may assign *tasks* aiming at forming integrative thinking competencies based on logical, problem-oriented and CT such as acquisition of knowledge related to laws and methods of logical and critical thinking, to the fundamentals of criticism and self-criticism; acquisition of hypothetic-deductive logic of thinking with elements of critical attitude; training in developing skills for understanding logical procedures in CT: explanation and conjecture, proof and disproof, reason, argumentation, assessment and self-appraisal; development of skills in critical thinking for the purpose of identifying logical errors and making critical assessment of phenomena and various types of behavior; training for acquisition of skills to exercise logical CT in various scientific fields, practice and social life [12].

In our research we will present a theory-substantiated model (Fig 1) of CT formation in students. It consists of five blocks: *goal-oriented block*, *functional block*, *contents block*, *organizational block* and *diagnostic-assessment block*.

Goal-oriented block is the driving force of the process of CT formation. All other blocks' substance depends on it. Goals allow to determine the content of tasks, methods, principles and means needed in professional education. In this respect the definition of goals is, in fact, the planned result.

Functional block includes approaches employed in CT formation as well as the principles and functions.

Contents block characterized principal trends in the process of formation of CT components (motivational, cognitive, activity-based, reflexive).

Organizational block is a system of methods developed on the grounds of competence-based approach in learning as well as on the theory of complete acquisition of knowledge, skills, habits and competencies thereby reflecting the process of CT formation.

Diagnostic-assessment block implements regular check-up and control of CT formation progress. It implies diagnostic of the level of CT accomplishment. This diagnostic is connected with analysis of interests of future specialists with regard to their professional activity.

Moving along individual blocks intensifies the process of CT formation. They are implemented through constant relationship with the actual progress and content of student activity, which is corrected by the tutor according to the concrete situation and personal idiosyncrasy.

The model illustrated in Fig.1 presents the technology of CT formation which can be utilized as instruction guide by the teacher in his/her attempt to select adequate methods, concrete ways of learning, forms of organization of academic activity and assessment during training.

CT formation involves a number of *pedagogical conditions* among which are the following: inclusion in educational standards and curricula which facilitate CT development; training of teaching staff possessing professional competencies in the areas of logical and critical; coordination of research in the field of development of thinking; experience exchange between researchers and teachers related to innovations in technologies for CT formation at conferences, seminars and special-purpose projects.

Didactic conditions include: development of special-purpose course; inclusion of tasks, problems, exercises and cases ,aiming at development of CT skills, in the content of other disciplines; availability of diagnostic methods for defining the level of CT, by taking into account peculiarities of age, capabilities and life experience of trainees; development of inter-disciplinary technologies of CT formation; continuity in technologies for CT formation in students.

It can be said in conclusion that learning Calculus in a way which is deliberately guided toward the goal of CT formation, results in better quality of higher education. In turn it facilitates formation of such qualities in students as logical judgment, flexibility, planning, consistency, becoming aware of personal mistakes and readiness to be corrected, all of which are needed in their future professional activity.

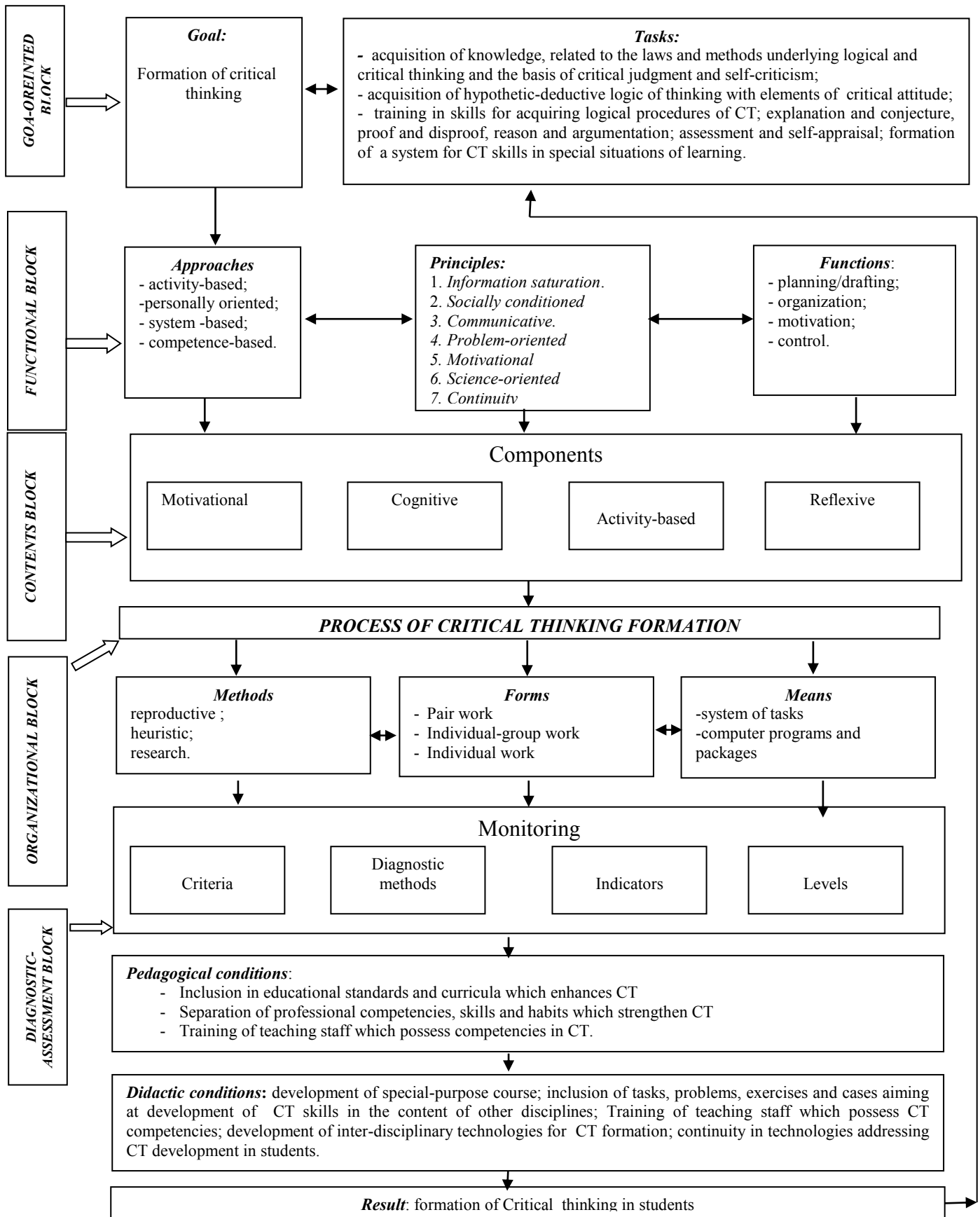


Fig. 1. Model of CT formation

Results

The practical significance of this research is to be seen in the possibilities for application of obtained results in the following trends:

1) Systematic use of developed methodological fundamentals for development of curricula and syllabi, classes in core and special disciplines, all of which aim at enhanced effectiveness of training along with reduction in the number of classroom periods;

2) Enhancement of professional orientation component in education through use of case studies, which are very close in content to real professional tasks in the realm of information technologies and instrumentation.

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Features impact cleaning technical hemp on the final raw materials

Abstract: The paper analyzed and compared to traditional assembly technology hemp and modern European technology. The main use of traditional error collection specialized technical hemp agricultural machines, and proposed a new technology fee, which includes corn harvester to collect the replacement of cutting nozzles for special pallet knives. Also, the experiment proved the feasibility of using this technology. The results of physical and mechanical properties of the fibers on this technology indicate the suitability of its use in various industries.

Keywords: hemp, fiber, harvesting, specialized technological machines for harvesting.

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Особливості впливу збирання технічних конопель на кінцеву сировину

Анотація: У роботі проаналізовано та порівняно традиційні технології збирання конопель і сучасні європейські технології. Визначено основні помилки застосування традиційного збору технічних конопель спеціалізованими сільськогосподарськими машинами, та запропоновано нову технологію збору, яка включає в себе комбайн для збору кукурудзи з заміною ріжучих насадок на спеціальні гідравлічні ножі. Також експериментально доведено доцільність використання даної технології. Отримані результати фізико-механічних характеристик волокна після цієї технології вказують на придатність застосування його в різних галузях виробництва.

Ключові слова: конопля, волокно, збір врожаю, спеціалізовані технологічні машини для збору врожаю.

На даний час в Україні селекціонерами створено нові високопродуктивні сорти конопель з повною відсутністю наркотичних властивостей та елітні сорти текстильного призначення: Вікторія, Гляна та Ніка [1]. Однак, збір та оброблення їх за традиційною технологією не дозволяє отримувати волокно високої якості. У зв'язку з цим перед коноплепереробною галуззю постала необхідність в розробленні, або в удосконаленні найбільш ефективних способів збору та первинної переробки стебел технічних конопель для отримання волокна високої якості, придатного для виготовлення широкого асортименту виробів.

Ефективне первинне оброблення стебел конопель не можливе без розроблення інноваційних технологій не тільки з їх переробки, але з підготовки їх до цієї переробки. Адже збір та підготовка коноплі до переробки є одним з вирішальних та головних етапів у процесі вирощування конопель, а також одним з найбільш трудомістких операцій в технологічній схемі вирощування та збирання даної культури.

Технологія збирання конопель відрізняється від технологій збору інших сільськогосподарських культур, оскільки вимагає цілого комплексу спеціальної техніки та обладнання [2]. Все це пов'язано з тим, що технічні коноплі мають у своєму складі волокнисті складові. Волокно при збиранні намотується на робочі органи, які обертаються і це не дозволяє проводити збирання за допомогою класичної збиральної техніки. Крім того, технологія збирання конопель тісно пов'язана з подальшою первинною переробкою стебел – приготуванням трести і механічним виділенням волокна.

Традиційна технологія збирання конопель на двостороннє використання сировини: насіння та волокна вимагає застосування спеціального комплексу коноплезбиральних машин. Найбільш поширеною є роздільна технологія із застосуванням коноплезбиральних машин ЖК -1,9 для скошування стебел та формування в снопи і коноплемолотарки МЛК 4,5, які призначені для обмолоту снопів. Дана технологія потребує значно більший відсоток ручної праці, тому в сучасних умовах вона економічно недоцільна. При цьому втрати насіння при збиранні досягають 20-30% [3]. З 60-х по 90-і роки минулого століття мала місце технологія збирання конопель коноплезбиральними комбайнами: КУК-5, ККП-1,8 та ККУ-

1,9. Застосування в технологіях збору коноплезбиральної техніки частково вирішувало проблеми великого відсотка ручної праці. Коноплезбиральні комбайни відносилися до складних сільськогосподарських машин. Використовувалися вони тільки для збирання конопель, сезонне навантаження на них становило 50 га, тому сьогодні їх застосування є економічно не вигідним.

Також одним з більш вдалих класичних варіантів збирання посівів конопель, була розробка прогресивної технології зеленцевого збирання конопель тільки для одержання волокна, яка включала в себе перехід від механізації окремих виробничих операцій до механізації технологічного процесу в цілому і практично виключила ручну працю, завдяки використанню рулонного преса для збору трести [4]. Але всі вище перераховані процеси мають на меті збереження паралельності стебел при збиранні для подальшого отримання з них довгого волокна. Тому така сировина придатна лише для виготовлення кручених виробів – канатів і мотузок. На сьогодні паралельність стебел не є обов'язковою умовою, тобто отримання довгого волокна не є основним завданням сучасності. У розвинутих країнах світу, конопляне волокно, яке характеризується високими гігієнічними, медико-біологічними та захисними властивостями застосовується не тільки для канатів та мотузок. Спектр застосування волокон цієї культури безмежний, від одягу до виробництва літаків. Тому вкорочення як стебел коноплі так і волокна з його подальшою модифікацією є важливим етапом сучасного виробництва якісного волокна з метою застосування його в різних галузях промислового виробництва.

Однією з головних вимог до технічних засобів для збирання конопель є мінімізація ручної праці і спрощення безпосереднього процесу збирання. Ці вимоги загальні як для зарубіжних, так і вітчизняних виробників техніки. В усьому світі для збирання конопляної сировини задіяні продуктивні і універсальні сільськогосподарські машини, зокрема зернозбиральні комбайни, що дозволяють проводити цю операцію в стислі агротехнічні терміни, мінімізуючи при цьому втрати насіння. Саме тому, на сьогоднішній день у багатьох країнах Європи збирання посівів конопель відбувається з використанням різних зернозбиральних комбайнів. У Франції наприклад, збирання відбувається комбайнами фірм "Case", "Claas", "John Deer", "Massey Ferguson" [5].

Технологічний процес збирання конопель зернозбиральним комбайном в Україні складається зі зрізання ріжучим апаратом жатки стебел конопель на ви-

соті до 150 см і обмолот скошеної маси в молотарці. Далі видалене насіння після очищення транспортується в бункер, а стеблова маса клавішами соломотряса скидається на землю. Після збирання насіннєвого матеріалу зерновими комбайнами в полі залишається зрізана частина стебел, збір якої за прийнятими технологіями перешкоджає плутанина з соломи і зламаних стебел після проходження комбайна. Збору залишків стебел, деякі виробники конопель не приділяють значної уваги, оскільки дана технологія спрямована на отримання насіння, а стеблова маса піддається утилізації.

Тому з метою комплексного вирішення питання збирання не тільки зернової частини врожаю, а й залишеної на полі стеблової маси після зернозбирального комбайна, українськими вченими запропоновано використання машин загального призначення, які до цього ніколи раніше не були задіяні на збиральних роботах з коноплею. Основна мета такого збирання залишається незмінною - зібрати цінний стебловий матеріал і звільнити поле від залишків стебел.

Досвід зарубіжних фахівців з переробки конопель дозволив удосконалити і сформулювати нові підходи до збору даної волокнистої культури [6]. Збирання стебел конопель доцільно проводити в період природного їх висихання до вологості не більше 19%. Оскільки в осінній період досягти даної вологості складно, а стебла знаходяться в вигляді соломи, то рекомендується проводити збирання стебел за фінською технологією, після осінньо-зимового приготування трести. Після обмолоту насіннєвої частини зернозбиральним комбайном стебла конопель залишаються на корені зимувати в полі. До весни відбувається перетворення соломи конопель на тресту. Під час приготування трести відбувається пошкодження прикореневої складової рослини конопель, що вказує на придатність їх до злому. Після чого відбувається процес збирання отриманої трести в рулони.

З 2005 року українськими вченими досліджується процес збирання посівів конопель сільськогосподарськими машинами загального призначення. За цей час було проведено аналіз досліджень робіт з різних розробок зернозбиральних комбайнів. На їх основі, було запропоновано технологію збирання стебел конопель, яка включає таку техніку: модернізований водоналивний каток, роторні граблі, рулонний прес-підбирач [7]. Даний комплекс машин дозволяє зламувати стебла з кореня, згрібати їх у валок, проминати стебла в валку, підбирати сформований в валок стебловий матеріал та формувати його в рулони для зручного

транспортування і зберігання. Оскільки стебла конопель за даною технологією збирання та складання хаотично розміщені і не вимагають збереження паралельності, то рух збиральних агрегатів проводиться з урахуванням конкретних форм полів, загонів, конкретних умов та стану поля: вологості ґрунту, його стану тощо. Доцільно проводити цей спосіб з рухом агрегату вздовж рядів. Даний спосіб руху передбачає мінімальні витрати часу агрегату на розвороти, що відповідно підвищує продуктивність проведення збиральних робіт. Після такого збирання, стебла конопель хоч і виходять хаотично розташовані, але все ж їх властивості не змінюються, а тому передбачається подальше їх використання в різних галузях виробництва. Але застосування обраного комплексу агрегатів все одно має деякі недоліки. Відомо, що конопля досягає своїми розмірами до 4 м у висоту, тому збирання її в рулони та транспортування до переробних заводів несе за собою залучання великогабаритних транспортних засобів, ці заходи не є зручними та вигідними. Також для отримання якісного волокна придатного для текстильного, целюлозо-паперового виробництва та інших сфер застосування, передбачається встановлення в технологічній лінії з переробки даної сировини для її подрібнення різальної машини, що несе за собою додаткові фінансові витрати. Отже, дана технологія потребує певного доопрацювання.

Спираючись на європейський досвід збору технічної коноплі з різанням її на полі та збиранням її в прямокутні кіпи для більш зручного транспортування її до переробних заводів, був запропонований процес збирання трести конопель з поля комбайнами для збору кукурудзи з заміною ріжучих насадок на спеціальні гідравлічні ножі, з різанням трести на 50-60 см. Різання трести, а не стрічки дає гарантію стандартної довжини та дозволяє отримати більше волокон прядильної групи. Дана технологія дає змогу отриманій сировині з мінімальними витратами легше оброблятися на наступних етапах обробки.

Для визначення придатності даної технології та її впливу на отримане волокно були проведенні дослідження фізико-механічних показників волокон конопель після процесу різання стебел. Всі дослідження проводилися на базі лабораторії кафедри товарознавства, стандартизації та сертифікації Херсонського національного технічного університету. За дослідний зразок було обрано стебла конопель весіннього збору, сортів текстильного призначення Вікторія, Гляна та Ніка. Їх волокно оцінювали за такими показниками: вихід волокна, середня дов-

жина волокон після декортикації, розривне навантаження та лінійна щільність. Середні показники отриманого продукту представлені в таблиці 1.

Таблиця 1

Основні фізико-механічні властивості волокна після збору комбайном для кукурудзи зі спеціальними гідравлічними ножами

№ з/п	Сорти	Вихід волокна, %	Розривне навантаження, даН	Лінійна щільність, текс	Середня довжина волокон, см
1	Ніка	31	36,0	28	45
2	Вікторія	37	34,5	25	42
3	Гляна	36	37,1	21	39

Аналіз проведених досліджень з визначення фізико-механічних властивостей волокна після збору комбайном для кукурудзи зі спеціальними гідравлічними ножами показує, що отримане волокно має всі необхідні якісні показники для застосування його в різних сферах виробництва. Також високий відсоток виходу волокна підтверджує доцільність застосування спеціальних текстильних сортів як для текстильної галузі, так і для інших галузей виробництва.

Таким чином, дана технологія має суттєві переваги порівняно з існуючими на сьогоднішній день технологіями збирання технічних конопель. По-перше, спрощується процес транспортування сировини до переробних заводів, по-друге покращується якість волокна, збільшується відсоток прядомих волокон – понад 50 %, а по третє виключення з технологічного процесу операції подрібнення паралелізованого шару стебел трести робить подальший процес обробки економічно вигідним. Впровадження запропонованої технології сприятиме розширенню сфери застосування волокна технічних конопель в Україні.

На сьогодні Україна не може задовольняти в повному обсязі сучасного споживача еко-товарами з коноплі, хоча у Дніпропетровській області виробляють з насіння конопель масло, в Полтавській із волокна – ковдри і килимки, в Харкові – канати і мотузки, але це – мінімальне наповнення вітчизняного ринку. З даної сировини при правильному підході до кожного процесу її переробки можна отримати прибуток не лише від насіння, але й можна отримати безліч якісних товарів різного асортименту від всіх компонентів рослини.

Серед ключових завдань національної економічної і екологічної політики у галузі коноплярства, невідкладного вирішення вимагає створення та впровадження в практику ефективних економічних механізмів відродження переробної галузі конопель в Україні та їх застосування у виробництві широкого асортименту товарів масового використання. Тільки створивши в галузі замкнений цикл виробництва – вирощування, збирання → переробка → реалізація продукції, можна досягти максимального розвитку вітчизняного коноплярства.

Узагальнюючи вищевикладене можна зробити висновок, що технічні коноплі є досить перспективною сільськогосподарською культурою. Одночасний розвиток технологій вирощування, збирання та переробки конопель дозволить динамічно та планомірно розвивати галузь, що дасть поштовх для додаткового розвитку сумісних переробних галузей.

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***The existence and transformation of the plot,
consisting of several narrative units
(for example, Even nimkana on Fox)***

Abstract: The existence of the plot, consisting of several story links, is common in fairy folklore of the Tungus-Manchurian peoples. A similar phenomenon is true for the fairy tale folklore of the evens. This article explores stories that represent a specific set of story episodes (subject situations), which in certain cases can be arranged into different sequences.

Keywords: evens, nimkin tale, even folklore, fairy folklore, genre, episode, plot, option.

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***Бытование и трансформация сюжета,
состоящего из нескольких сюжетных звеньев
(на примере эвенского нимкана о Лисе)***

Аннотация: Бытование сюжета, состоящего из нескольких сюжетных звеньев, является распространенным явлением в сказочном фольклоре тунгусо-маньчжурских народов. Подобное явление характерно и для сказочного фольклора эвенов. В данной статье проанализированы сюжеты, которые представляют собой своеобразный набор сюжетных эпизодов (сюжетных ситуаций),

которые в определенных случаях могут компоноваться в различной последовательности.

Ключевые слова: эвены, нимкан, сказка, эвенский фольклор, сказочный фольклор, жанр, эпизод, сюжет, вариант.

В.Я. Пропп, исследуя русский сказочный фольклор, выделил два вида сказок о животных: 1) цельносюжетные, не вступающие в соединение с другими сюжетами и представляющие собой законченные произведения (таких, как показал ученый, меньшинство); 2) не обладающие сюжетной самостоятельностью. Последние, хотя и могли бы рассказываться самостоятельно, но фактически почти всегда структурируются в цепочной последовательности, образуя единый текст. Исследователь отметил также, что есть сюжеты, которые никогда не рассказываются отдельно, при том, что внешне они независимы друг от друга. В.Я. Пропп предложил даже сохранить для них термин «животный эпос», подчеркнув, что соединяемость – «внутренний признак животного эпоса, не присущий другим жанрам» [8].

Эвенский сюжет о Лисе может быть рассмотрен именно в таком теоретическом контексте. Замечу, что Лиса является излюбленным героем восточнославянского, западноевропейского и азиатского животного эпоса, поэтому здесь не исключается вопрос о позднем заимствовании его эвенами. Для сравнительного анализа нимканов о Лисе привлекаем 4 текста.

Текст 1. Самая ранняя запись нимкана «Про лису» («Хуличан дьувулин») сделана в 1945 г. от эвена М. П. Семенова [2; 146–152]. В данном тексте соединены двенадцать микросюжетов, образуя многосоставную сказку. Рассмотрим этот сюжет.

1. Повествуется о Лисе и Кедровке. Лиса, угрожая срубить и повалить дерево, выманивает у Кедровки яйца и съедает их. Данный эпизод по тематической классификации Березкина Ю.Е. относится к мотиву К27УУ Птица на дереве [1].

Живет кедровка. У кедровки три яйца. Пришла лиса и говорит:

- Кедровка, дай свое яйцо.

- Зачем стану давать?

- Мне поесть надо, говорит лиса.

- А как же заимею я детей?

- Все равно съем твои яйца. Дерево твое (на котором ты сидишь) срублю, повалю.

Кедровка заплакала. Поплакав, отдала одно яйцо. Лиса ушла. Уйдя, опять пришла на следующее утро. Лиса говорит кедровке:

- Еще дай (одно) свое яйцо.

Кедровка опять дала свое яйцо. Лиса ушла. (У кедровки) осталось одно яйцо. Она плачет и плачет, весь день проплакала.

2. Повествуется о птице *Гараньдя* и Кедровке. Прилетает птица *Гараньдя* и убеждает Кедровку, чтобы она не отдавала ей яйца. Данный эпизод по тематической классификации Березкина Ю.Е. относится к мотиву М85. Лиса блефует [1].

Потом явилась птица *гараньдя*. *Гараньдя* говорит кедровке:

- Кедровка, почему ты плачешь?

Кедровка говорит:

- Как же мне не плакать, ведь мои яйца лиса каждый день ест.

Гараньдя говорит:

- Кедровка, ты самая глупая. Как будет она есть, чем будет дерево рубить, она обманывает тебя. Если лиса придет еще раз и станет снова просить есть твое яйцо, ты не давай. Если лиса спросит, кто научил тебя не давать, скажи, что *гараньдя*.

Гараньдя улетела. Пришла лиса.

- Кедровка, еще дай поешь.

Кедровка говорит:

- Не дам.

- Почему не дашь? Кто тебе сказал, чтобы не давать?

- *Гараньдя* сказала, - говорит кедровка.

Лиса тотчас же побежала. Когда побежала, сказала:

- Ну, погоди же, *гараньдя*, я тебя как-нибудь, когда ты будешь спать, убью!

После этого лиса ушла.

3. Повествуется о Лисе и птице *Гараньдя*. Птица *Гараньдя*, схватив Лису, уносит ее на морской остров и оставляет там. Данный эпизод по тематической классификации Березкина Ю.Е. относится к мотиву М85. Лиса блефует [1].

Однажды, когда гараньдя спала, в то самое время лиса подкралась, схватила гараньдю, за шею ее схватила, и стала грызть ее шею. Тогда гараньдя схватила лису, потащила (и) бросила на морском острове. После этого начала лиса плакать.

4. Повествуется о Лисе и Нерпах. Данный эпизод по тематической классификации Березкина Ю.Е. относится к мотиву М3А. Посчитать обитателей вод [1].

Лиса выбирается на сушу, прыгая с одной нерпы на другую, делая при этом вид, что считает их, прыгает на берег и убегает, сказав нерпе, чтобы она одна считала свой народ. Тогда Нерпа, поняв, что Лиса схитрила, произносит: «Ну, погоди же, лиса, попадешься же ты к людям в самострел!».

И вот, когда она плакала, (из воды) выглянула нерпа (и) говорит:

- Лиса, ты почему плачешь?

- Нет, нерпа, я не плачу.

Нерпа скрылась. Лиса еще сильнее стала плакать, нерпа снова выглянула:

- Лиса, ты действительно не плачешь?

Лиса говорит:

- Ну, давай посчитаем, у кого народа будет больше.

Нерпа тогда говорит:

- Ну, кто же будет считать первым?

Лиса говорит:

- Ты, нерпа, своих людей собери!

Тотчас же нерпа отправилась (и) привела своих людей.

Лиса сказала:

- Теперь же положи своих людей в ряд по направлению к берегу. Сейчас буду считать.

Тотчас же стала лиса считать. Стала прыгать (с одной нерпы на другую) и считать:

- Один, два, десять...

Тогда нерпа сказала:

- Лиса, нехорошо считаешь, ошибаешься.

Лиса говорит:

- Не ошибаюсь.

Потом лисонька сказала:

- Сейчас буду лучше считать. Опять обманывает. Уже берег близко.

Нерпа сказала:

- Ты, лиса, наверное, опять обманываешь.

Лиса сказала:

- Я не обманываю. Сейчас последний раз посчитаю.

Снова стала лиса считать.

- Один, два, двадцать...

Нерпа опять сказала:

- Лиса, нет, ты, наверное, опять обманываешь.

В это же время лиса прыгнула на морской берег. Побежала, оглянулась, потом сказала:

- Нерпа, считай свой народ одна!

В это же время нерпа сказала:

- Ну, погоди же, лиса, попадешься же ты к людям в самострел!

Лиса ушла.

5. Повествуется о Лисе, Старике и Старухе. Лиса нанимается пастухом к старикам, делает вид, что пасет оленей, а сама съедает их и убегает. Данный эпизод по тематической классификации Березкина Ю.Е. относится к мотиву М150. Пастух-обманщик [1].

Нашла реку. Там нашла старика. Старик со старухой ловят рыбу (для себя). Имеют пять рабочих оленей. Лиса сказала:

- Отец, почему ты так трудно живешь? Когда только (ты один) к оленям ходишь, ведь тебе, наверное, трудно.

Старик сказал:

- Что же я буду делать, у меня же детей нет. Старуха ослабла, поэтому я один тружусь.

Лиса сказала:

- Давай-ка я пойду пасти твоих оленей, тогда тебе легче будет.

Стала лиса жить в тайге. Одного оленя съела. Шкуру целиком сняла. Когда сняла шкуру, травой набила. (Так) всех (оленей) убила.

После этого лиса стала думать, как бы обхитрить старика. Придумала. Придумав, пошла к старику. Пришла (и) говорит старику:

– Отец, иди теперь посмотри своих оленей, откормила твоих оленей так, что они зажирели. Я же далеко ездила, по хорошему корму твоих оленей водила. Теперь иди посмотри.

Отправился старик к своим оленям; один пошел, лиса осталась дома. Пришел к своим оленям. Придя, стал осматривать своего ездового оленя. Удивляется старик тому, как выглядят его олени. Старик промолвил:

- Удивительно, как выглядит этот мой ездовой олень!

Старик толкнул ногой, оленище его упал. Оказывается, обыкновенная трава. Все его олени травой набиты, лисонька всех съела.

Пошел после этого старик к себе домой. Идет домой и плачет. Когда стал подходить к дому своему, закричал:

- Старуха, держи лису за хвост!

Старуха говорит:

- Лиса, что сказал твой отец? Я не слышу.

Лиса тогда сказала:

-Лису хорошей юколой покорми!

Опять стал кричать старик:

- Старуха, держи лису за хвост!

Старуха говорит:

- Лиса, что сказал твой отец? Я не слышу.

Лиса говорит:

- Лису хорошими ягодами и орехами покорми!

Старуха тогда сказала:

- Лиса, а почему я так слышу: «Держи лису за хвост?»

После этого поймала старуха лису за хвост.

Лиса сказала:

- Мать, ты за грязное место можешь схватиться, немножко пониже схвати.

Старуха сильно ослабила руку, лиса прыгнула (и) убежала.

Пришел старик.

- Почему лису не задержала, однако я уже с которых пор кричу, чтобы ты держала лису за хвост.

Старуха сказала:

- Я не слышала.

Тогда старик сказал:

- Ну, погоди же, когда-нибудь поймем лису, чтобы она не проказничала!

6. Повествуется о Лисе, Старике и Старухе, которые остались без оленей после обмана Лисы. Лиса приходит и напрашивается помочь Старика тащить сани, а затем обманным путем попадает в сани, где в сушеном пузыре находит еду – *кульни*. Сидя на нарте, лиса дает названия различным рекам. Старика названия рек кажутся странными. Старик устраивает пляску, надев мохнатые штаны, чтобы вызвать смех и тем самым обнаружить объект преследования – лису. Данный эпизод по тематической классификации Березкина Ю.Е. относится к мотивам: М140. Лиса на нартах; М74В Кто съел жир?; М74ab. Лиса в лодке; М88. Вовлеченный в танец [1].

Наступила осень. Пришло время, когда должен выпасть снег. Всюду появился снег. Старик задумался: «Как теперь будем кочевать, без оленей остались». Сделал старик себе нарту. После этого покочевали, нартишку свою сами волоком потащили. И вот, когда так тащили (свою нарту), явилась лиса. Лиса говорит:

- Ой, как интересно! Отец, ты почему сам тащишь? Куда олени делись? Ведь у тебя же были олени? Что, тяжело тащить?

Говорит тогда старик лисе:

- Так вот лиса меня обманула.

Лиса говорит:

- Та самая лиса, живущая в лесных дебрях, является обманщицей, и мы знаем ту лису, если она что-нибудь попросит (у нас), мы не даем (ей). Мы же давно знаем, что она является обманщицей.

- Отец, давай-ка я помогу тебе, я потащу (нарту), (а) ты иди пешком.

Лиса потащила (нарту). Старик даже засмеялся, когда лиса потащила. Но вот у лисы ноги заболели.

- Ой, отец, я ноги (свои) сломала!

Старик говорит:

- Детка, страдание мы тебе причинили, садись лучше на нашу нарту!

Старик (опять) потащил. Лиса села на нарту (и) стала думать: «Как теперь мне поступить, чтобы украсть вот это?». Там (т.е. на нарте)

нашла она сушеный нерпичий пузырь. В том сушеном пузыре было кушанье – кульни. Стала лиса его есть.

Едут и едут... Вот старик реку нашел, говорит лисе:

- Лиса, как называется эта речка?

Лиса сказала:

- Отец, она называется Начальная.

Дальше отправились. Позади (за этой речкой) опять нашли реку, снова спрашивает старик:

- Лиса, опять реку нашел.

Лиса сказала:

- Отец, она называется Половинка.

Затем дальше едет старик, снова реку нашел.

- Лиса, опять реку нашел.

Лиса сказала:

- А название этой (реки) Конечная. Отец, сейчас вот здесь и остановимся.

Вот остановились. Лиса стала ходить на костылях. Старик сказал:

- Лиса, смотри, (опять) можешь поломать ноги (свои).

- Отец, (уже) немножко лучше стало.

Потом лиса сказала:

- Отец, топор принеси!

- Зачем?

- Дрова для нас пойду принесу.

Пошла лиса за дровами. Потом Лиса топорик старика бросила (и) убежала в лес.

Старик ждал, ждал лису дома, потом говорит своей Старухе:

- Что случилось с этой лисой? Пойду (ее) поищу.

Пошел старик искать. Нашел свой топор, который бросила Лиса, затем лисьи следы. Пришел Старик домой. Придя, говорит старухе:

- Нет (лисы), опять лиса нас обманула. Ну, Старуха, шей мне штаны.

Сшила старуха штаны мохнатые. Наступил вечер. Старик надел штаны (свои), стал шаманить:

- Лиса и медведь, все приходите смотреть, приходите смотреть, как я буду шаманить.

В то же самое время стал старик плясать. Со штанов старика сыпалась шерсть так, что только пыль столбом. Находящиеся в его жилище Медведь и Лиса смеялись так, что только хохот разносился. Старик сказал:

- Старуха, закрой вход (наш) (и) окно (наше) закрой!

Потом старик сказал:

- Старуха, постарайся, попытайся ударить Лису палкой.

Лиса сказала:

- Мама, не бей меня. Я когда-нибудь тебя выручу.

7. Повествуется о Лисе, Медведе и Старике. Лиса обманом убивает медведя.

После этого лиса говорит старику:

- Отец, ты еще сильный?

Старик тогда сказал:

- Зачем меня таким образом спрашиваешь?

- Как же мы медведя убьем?

Старик тогда сказал:

- У меня лук есть (и) стрелы есть.

Лиса сказала:

- Отец, пойдем вместе вниз к реке.

Пришли на реку, лиса говорит:

- Отец, ты здесь сиди, будешь стрелять в медведя из лука стрелами, а я пойду, медведя пощу.

Отправилась лиса. Нашла медведя.

- Медведь, ты, что так мало рыбы ешь?

Медведь сказал:

- Где же я найду много рыбы?

Лиса сказала:

- Давай я тебя поведу, я знаю, где много (рыбы).

Медведь тогда сказал:

- Ты знаешь, в каком месте?

Лиса тогда сказала:- В низовьях реки есть хорошая заводь.

Медведь сказал:

- Нет, я боюсь, там старик живет. Того старикашку боюсь, очень страшный.

Лиса сказала:

- Там нет старикашки. Я давно уже головушку его таскала в зубах.

Тогда медведь сказал:

- Ну, пойдём!

Пошел медведь вместе с лисой.

Лиса сказала:

- Медведь, ты иди первым.

После этого лиса сказала:

- Отец, вон в того постарайся (попасть) стрелой (своей).

Медведь тогда сказал:

- Лиса, почему ты говоришь «постарайся»?

Лиса говорит:

- Кто же ты, ты ведь и есть старик, к рыбному месту подошли.

Медведь сказал:

- Ой, ошибся я.

Старикашка выстрелил в Медведя из лука, в кишки его попал. Медведь бросился бежать. В то же самое время медведь сказал:

- Лиса, вот поэтому-то я ленился, не хотел сюда идти. Вот видишь теперь, сами себе навредили.

Лиса сказала:

- Ты на палку наткнулся. Ту (рану) вылечим.

После этого начала лиса лечить медведя. Всю печень Медведя Лиса вытянула.

Медведь стонет:

- Ох! Ой!

(А) Лиса говорит:

- Медведь, не кричи, сейчас (тебе) хорошо станет.

Медведь околел.

8. Лиса вместе со Стариком, после того как она обманом убила Медведя, разделяют мясо и таскают в землянку. Затем Лиса обманывает Старика, связывает его веревкой и одна съедает мясо Медведя. А связанного Старика оставляет в землянке одного, сама уходит.

Пришла Лиса к Старику (и) говорит:

- Старик, Медведя (для себя) убили. Теперь будем таскать (добычу) в землянку.

Старик сказал:

- Хорошо!

Перетащили все мясо, разрезав на мелкие куски. Вот кончил (резать), стал лису кормить. Лиса говорит старику:

- Отец, ты меня свяжи. Я буду сидеть на одном месте, а ты тогда корми (меня) с помощью деревянной вилки.

Старик стал резать мясо на мелкие куски. Вот кончил (резать), стал лису кормить. Лиса сказала:

- Отец, так лучше всего нам питаться. (А) теперь, отец, ты меня развяжи, теперь, отец, давай-ка я тебя свяжу.

Старик сказал:

- Хорошо, свяжи.

Старичишку связала. Стал старик сидеть, а Лиса стала есть. Старик говорит:

- Лиса, ну дай же и мне!

Лиса сказала:

- Старик, я тебе не дам ни одного кусочка. Ты на этом месте, где сидишь, и умрешь.

Стала Лиса есть мясо, все мясо уничтожила. А Старик сидел, сидел, потом сказал:

- Лиса, развяжи же меня!

Лиса сказала:

- Не развяжу, ты здесь же и умрешь!

После этого лиса убежала в сторону от жилья (на волю).

9. Старик, связанный Лисой, сидел и умирал от голода. В то самое время видит Волка и просит, чтобы Волк его развязал. Волк отказывается и убегает.

Живет и живет старик, худой стал. И вот, когда он так сидел, увидел, что идет Волк. Старик просит волка:

- Волк, развяжи меня!

Волк говорит:

- Не буду развязывать, лиса сказала, чтобы я не развязывал.

Волк убежал. Старик заплакал.

10. Старик просит Медведя, чтобы он развязал его. Медведь отказывается и уходит.

И вот, когда он плакал, пришел медведь. Старик просит медведя:

- Медведь, развяжи меня!

Медведь говорит:

- Не буду развязывать, Лиса сказала, чтобы я не развязывал.

Ушел Медведь от Старика. Старик опять заплакал. Долго плакал, потом заснул. Спал, спал, потом проснулся.

11. В одиннадцатом эпизоде Старик видит Мышку и просит ее, чтобы она развязала его. Мышка соглашается помочь Старику. С 7 – 11 эпизоды, по тематической классификации Березкина Ю.Е. относятся к мотиву А38В. Мышь перегрызает силок [1].

Когда проснулся, увидел, что бежит мышка. Спрашивает мышка старика:

- Почему ты плачешь?

- Лиса не развязала (меня).

- Я развяжу.

- Как же ты развяжешь? Волк, боясь, лисы, не развязал, и медведь не развязал.

- Давай попробую!

Попытавшись, мышка сказала:

- Отец, я развяжу тебя, только не скоро развяжу, два дня буду развязывать (твои веревки).

Старик тогда сказал:

- Постарайся, уж как-нибудь попытайся развязать!

После этого начала Мышка грызть ремни старика. Два дня грызла. Когда настал третий день, один ремень порвался. И вот когда (Мышка) кончила грызть, старик стал ходить. Развязала Мышка Старика. После этого старик сказал:

- За твою работу дам тебе одного оленя.

Поймал тот самый старик одного оленя. Положил ту мышку (свою) на оленя (своего) (и) сказал:

- На, мышка, ешь!

12. Старик решает наказать Лису. Находит лисьи следы и ставит самострел. Лиса попадает в самострел старика и погибает.

Потом стал старик думать: «Как мне убить лису?». Сделал старик самострел и пошел в сторону от жилья, в тайгу. В тайге нашел лисьи следы. Поставил там свой самострел. Домой вернулся.

На следующее утро пошел смотреть свой самострел. По дороге идет лиса и говорит про себя: «Пойду-ка в землянку к Старичишке, украду-ка ножик (для себя). Сейчас Старичишка, наверное, уже умер».

И вот, когда шла, попала в самострел Старика и околела. Кончилась (сказка).

Итак, эвенская сказка «Про лису» («Хуличан дьувулин»), записанная в 1945 г. К.А. Новиковой от М.П. Семенова (Новикова 1980: 146-152), состоит из двенадцати эпизодов. Каждый эпизод имеет аналоги в фольклоре других народов Севера, Сибири и Дальнего Востока [6; 7]. Интересно отметить, что современная эпическая традиция эвенов сохраняет сюжет о Лисе. Примером данного явления могут служить следующие эвенские нимканы.

Текст 2. Эвенская сказка «Старик Бочиликан» («Бочиликан этикэн»), записанная мной от З.А. Степановой (Материалы автора, 2006), состоит из трех микросюжетов: эпизод о лисе, обманным путем попавшей на сани и съевшей всю еду старика, а на месте поедания еды оставившей выпавший зуб. И эпизод о пляске Старика с дырявыми штанами, засунувшего туда труху, чтобы вызвать смех и тем самым обнаружить объект преследования – беззубую Лису [3].

Три микросюжета нимкана по тематической классификации Березкина Ю.Е. относятся к мотивам: М140. Лиса на нартах; М74В. Кто съел жир?; D13I. Сломанный зуб; М88. Вовлеченный в танец [1].

Текст 3. Эвенская сказка «Лиса» («Хуличан») записана мной в 2003 году от А.С. Соколовой, проживающей в пос. Кепервеем Билибинского района Чукотского автономного округа (Материалы автора, 2003); содержит эпизод о Лисе, обманным путем попадающей на сани и съевшей рыбу и мясо, а на месте поедания оставившей выпавший зуб. И эпизод о пляске Старика с дырявыми штанами без шерсти, засунувшего туда труху, чтобы вызвать смех и тем самым обнаружить объект преследования – беззубую Лису [4].

Три микросюжета нимкана по тематической классификации Березкина Ю.Е. относятся к мотивам: М140. Лиса на нартах; М74В. Кто съел жир?; D13I. Сломанный зуб.

Текст 3. Эвенская сказка «Лиса» («Хуличан»), записанная от М.И. Булдукиной, проживающей в Среднеколымском улусе Республики Саха (Якутия) в 2010 году (Материалы автора, 2010), состоит из 3-х микросюжетов, например, Лиса нанимается пастухом к старикам, делает вид, что пасет оленей, а сама съедает их и убегает [5].

Три микросюжета нимкана по тематической классификации Березкина Ю.Е. относятся к мотивам: М150. Пастух-обманщик; D13I. Сломанный зуб; М88. Вовлеченный в танец [1].

Ситуация с сюжетом/сюжетами о Лисе довольно сложна в теоретическом отношении. Она представляет собой своеобразный набор сюжетных эпизодов (сюжетных ситуаций), которые в определенных случаях могут компоноваться в различной последовательности. Таким образом, сказка о Лисе представляет собой специфический вариант кумулятивного повествования. Собранный и проанализированный мною материал дает основания для определенных выводов. Эвенский эпос способен видоизменять, варьировать прозаические жанры по воле сказочника и аудитории, что подтверждается возможностями разнопланового функционирования (распространения, компоновки эпизодов) сюжета о Лисе в эвенских нимканах. Наличие подобных сюжетов в репертуарах исполнителей и происходящие трансформации свидетельствуют о бытовании животного эпоса в традиции эвенов.

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Development of critical thinking of students by means of active and interactive methods of training

Abstract: In the conditions of modernization of Russian education there was a structural and substantial change of system of higher education. The happening transformations are caused by the amplifying tendencies of globalization, a humanization and informatization of education, need of use of intellectual and creative potential of the person for creative activity for all spheres of life and sustainable economic development of Russia. Therefore before the higher education the additional purposes during the training and development of students are set. Namely in FGOS VPO and normative documents, provisions and instructions it is specified about development of a professional orientation of the identity of students that it is shown in ability to build their flexible trajectory of the activity, in ability to adapt in constantly changing circumstances, in development in them of critical thinking, etc. Therefore in this article various approaches and interpretations of rather critical thinking and its components are considered by us. And also some options of development of critical thinking of students on a lecture practical training are offered.

Keywords: University, students, active methods, standard, development, critical thinking, interactive methods, teaching.

Introduction. According to the Federal state educational standard of higher education of one of main objectives training of the qualified specialist of appropriate level and the direction, competitive in labor market, competent, masterfully using the profession and guided in adjacent spheres of action, having new critical thinking, high mobility, etc. is.

The analysis of psychology and pedagogical literature which is carried out by us showed that one of an integral part of professional competence of students is the developed critical thinking.

Foreign and domestic researchers (Antonius of [1], M. Skriven [2], G. Lindsey [3, 4], D. Kluster [5], D. Halpern [6], R. F. Thompson [7], K.S., M. M. Levina, A. V. Bryushinkina, T. Yu. Merzlyakova, etc.) pay much attention to consideration of critical thinking from increase in informative activity of students, independence, etc.

Criticality of thinking as ability is considered by G. I. Bizenkov, A. V. Butenko, S. I. Wexler, A. A. Smirnov, B. M. Teplov, E. A. Hodos, etc.

In B. G. Ananyev, V. V. Afanasyev, P. Ya. Galperin, A. V. Zaporozhets, A. N. Leontyev, N. A. Menchinskaya, D. Polya, L. M. Friedman's works and others the critical thinking is presented as an element of creative thinking.

In English a concept the critical thinking means ability to reflect over how the person gains knowledge.

The researcher I. O. Zagashev presented critical thinking as "the process including abilities: to analyze, draw conclusions, to interpret" [1]. What most widely opens a concept of critical thinking, indicates thought processes with which the person conceiving crucially operates.

According to M. Skriven, the critical thinking means "thinking estimated, reflexive. This open thinking which is not accepting dogmas, developing by imposing of new information on personal life experience" [tsit. on: 8]. It is possible to tell that the critical thinking is a starting point for development of creative thinking, moreover, both critical and creative thinking develop in synthesis, interdependent.

In definition G. Lindsey, K. Hall the critical thinking is presented as "... verification of the proposed solutions for the purpose of definition of field of their possible application. The creative thinking is directed to creation of the new ideas, and critical - reveals their shortcomings and defects" [tsit. on: 8, page 88].

Here authors differentiate creative and critical thinking. Showing thereby that the creative thinking is directed to creation of a new product, and the critical thinking in turn subjects to check already created product of cogitative activity.

In the researches I. O. Zagashev notes that "critical thinking – the directed thinking, the process focused on a solution which demands the developed skills:" [tsit abilities to analyze, draw conclusions, to interpret on: 9].

Here the researcher I. O. Zagashev presented critical thinking as the process including abilities: to analyze, draw conclusions, to interpret. What most widely opens a concept of critical thinking, indicates thought processes with which the person conceiving crucially operates.

A.S. Sharov marks out the following qualities of critical thinking: logicity; integrity; organization" [10].

Allocation of such qualities, according to A.S. Sharov, corresponds to practice inquiries including what "... development of qualities of critical thinking is one of the education purposes" [10].

But, despite various treatments, a concept the critical thinking the Russian and foreign authors is as follows: to think critically – means consciously to think.

Thus, the main factor of successful development of critical thinking, correctly organized educational process during which the student learns to allocate the main thing is, to analyze, choose the most effective way of approach to a problem including own. It should be noted that the developed critical thinking also as well as informative activity forms further a basis for successful self-education, self-development and self-education of the expert.

Technique.

Methods of determination of the level of development of critical thinking can be divided into three groups: a) a complex of means, receptions and the technician of assessment of cogitative competences of criticality of mind of application to a wide class of problems, situations, values and installations on criticality; b) private techniques and technicians of assessment of abilities and abilities to think critically in certain situations, concrete subject domains; c) estimation of the separate aspects of critical thinking expressed as concrete abilities of type to see and comprehend problems, to compare personal and others' proofs at solution of the problem.

Research tools

- 1) technique "Formation of difficult analogies";
- 2) "Whether I Am Able to Think Critically ...?" test.

Diagnostics which is carried out by us included personal aspect.

Determination of the level of development of critical thinking of students became the purpose of personal aspect.

Selection of a research

68 students of department of PIMNO TIA (f) SVFU participated in a research.

Results of a research

By a technique "Formation of difficult analogies" ability of students ability to allocation of the difficult, abstract logical relations was determined.

Own the average level of development of critical thinking - 42% of examinees, low level is characteristic of 38% of students, high level - 20% of students.

According to the "Whether I Am Able to Think Critically ...?" test it was revealed that 48% of students are able to give definitions and to do distinctions, to compare similar situations.

Results of diagnostics confirm need of development in these students of critical thinking in the course of training.

We also when determining the level of development of critical thinking of students relied on the levels of development of critical thinking developed by B. Blum:

- 1) reproduction – recognition and a call of information;
- 2) understanding - interpretation of material, schemes, transformation of verbal material to mathematical expressions etc.;
- 3) application of concepts, laws, procedures in new situations;
- 4) the analysis — allocation of the hidden assumptions, finding of mistakes in logic of reasonings, carrying out differentiations between the facts and the investigations etc.;
- 5) synthesis - writing of the creative composition, scheduling of a research etc.;
- 6) assessment of logic of creation of material, importance of a product of activity etc.

Main part.

The critical thinking has not only qualities, but also abilities, so D. Halpern, reflecting on intellectual abilities of critical thinking, stops attention on the following from them:

- 1) "analysis (conclusions);
- 2) promotion, formulation, development of hypotheses;
- 3) establishment and creation, search of analogies, metaphors;
- 4) activization of earlier acquired knowledge;
- 5) activization of the cause and effect relations;
- 6) analysis of the importance;
- 7) comparison — comparison — opposition;

- 8) application in actual practice;
- 9) counterargument;
- 10) assessment and its reliability (validity);
- 11) generalization of the ideas;
- 12) studying of other points of view" [11, page 24].

Allocation of these abilities, most fully characterizes critical thinking as process conscious, caused by inquiries of modern education.

Proceeding from the analysis of the received results during diagnosing, and also is higher the presented criteria a main objective of our work development in students of psychology and pedagogical education along with development of informative activity and development of critical thinking in process obuchen6iya, that is expansion of cogitative competences for the effective solution of social, scientific and practical tasks is.

The analysis of the federal state educational standard which is carried out by us in the direction of preparation 050400.62 – "Psychology and pedagogical education", standard and legal documents showed that transition of an education system to multilevel preparation involves also changes in requirements to educational process, to the new modes of training.

One of such modes can allocate use in educational process of interactive forms and methods of training which are aimed, first of all, at the development of ability in students to think extraordinary, formation of professional competences of future experts; implementation of feedback; stimulation of motivation and interest at subjects of educational process in the field of the studied objects; development of skills of the analysis, criticality of thinking, communication of students; development of skills of communication of students and interaction in group; formations at them valuable and orientation unity of group, etc.

Therefore a certain percent of a lecture practical training in higher education institution has to be given in interactive forms or with use of active and interactive methods. "Specific weight of the classes given in interactive forms is defined by a main goal of OOP of a bachelor degree, feature of the contingent of students and content of concrete disciplines..." [12]. In general as it is specified in FGOS VPO in the direction of preparation 050400.62 – "Psychology and pedagogical education" in educational process they have to make not less than 25% of classroom occupations.

The concept "interactive methods" can be translated as methods of interaction of participants among themselves, and the training which is carried out by means of these methods can be considered interactive, that is, constructed on interaction.

In psychology the interaction means "ability to interact or is in the mode of a conversation, dialogue with someone (person) or something (for example, the computer)" [13]. Therefore, interactive training is, first of all, dialogue training during which interaction not only of the teacher and the trainee, but also trainees with each other is carried out.

It is possible to allocate with feature of such interaction: stay of subjects of education in one semantic space; joint immersion to the problem field of a solvable task, i.e. inclusion in uniform creative space; coherence in the choice of means and methods of implementation of the solution of a task; "joint entry into a close emotional state, experience of the conformable feelings accompanying acceptance and implementation of the solution of tasks" [12]. The teacher at such training performs function of the consultant, but not mentor. Students act as subjects of activity which actively participate in knowledge process, following the individual route.

Thus, practically all students are involved in knowledge process, they have an opportunity to understand and reflex on the fact that they know and think; develop ability to listen to other point of view and ability to cooperate.

On a lecture practical training regularly we apply various active and interactive methods which use is aimed at the development of critical thinking and motivation of students: a heuristic conversation, brainstorming (attack), business games, a method projects, a discussion, playing of situations, opos-Kviz (control), trainings (sensitivity, administrative), a video training, imitating games, collective solutions of creative tasks, case-study, modeling, discussion of videos on an occupation subject, the Kvadro method (according to V. Müller, S. Vigman), moderatorsky seminars, clusters, drawing up sinkveyn, web quest, etc.

The listed methods have to be applied in educational process together with interactive forms.

In modern pedagogics the following more common interactive forms are presented: general discussion, educational discussion, group discussions; practical works; various forms of mutually training and mutually control; laboratory and research works / protection of projects is a form at which the student conducts an independent research of various subjects during the long period of time at the end of

which he provides and protects the work; problem and search training; distance learning; presentations (as evident option of lecture and practical material); work in small groups and couples of replaceable (dynamic)/constant (closed) structure – a form of dialogue interaction; seminars, etc.

In the conditions of use of new educational technologies and methods of training when to the trainee the role of the subject of training is delegated, the operating time of practical experience of use of information technologies, namely web quests, sinkveyn at the organization of informative independence and development of critical thinking of students is especially urgent.

Web Quest is a special type of the information, problem-oriented tasks of individual or group training directed to formation and development of skills of independent activity, search and research activity of students in the course of assimilation and a research of a training material.

The purpose of use of web quests by us in training of students is development of critical thinking, abilities of the analysis, synthesis, definition of own position, expansion of a world outlook outlook, information assessment at rational use of school hours for obtaining necessary information on a certain question, a subject, a problem and the subsequent its processing.

The web quest is an independent search activity on Internet open spaces on one or several branches of in advance prepared route to the definite purpose set at the beginning of a route during which it is necessary to receive and analyze the found information to pass to the following stage on the ways to the purpose.

We use the following types of web quests in the activity:

1) reproductive: granting material from various sources without their independent processing;

2) reproductive and cognitive: presentation, article, message, performance before audience, virtual travel, belief, etc.;

3) cognitive: search, systematization and analysis of information on a certain subject;

4) cognitive and creative: development of the project on the basis of the set conditions on the available points; search of the answer to a question;

5) creative: implementation of the conceived scenario in various genres; justification of own point of view on a certain problem.

For the first time the term "web quest" was offered in 1995 by Berney Dodge, professor of educational technologies of San Diego University (USA) [13].

Having analysed scientific research of the author, the conclusion was drawn that in training of students of psychology and pedagogics we can use the following types of tasks for web quests:

1) retelling - demonstration of understanding of a subject on the basis of representation of materials from different Internet resources in a new format: creation of the presentation, poster, story;

2) planning and design - development of the plan or project on the basis of the set conditions;

3) self-knowledge – any aspects of a research of the personality: work with diagnostic techniques in on - line - the mode;

4) compilation – transformation of a format of information obtained from different sources: creation of the book, glossary;

5) a creative task – creative work in a certain genre - creation of a psychological portrait on the basis of fiction, scientific sources, drawing up consultations for teachers and parents;

6) reaching consensus – development of the decision on an acute social and psychological or pedagogical issue;

7) journalistic investigation – an objective statement of information (division of opinions and the facts);

8) belief – inducement on the party of opponents or neutrally adjusted persons;

9) scientific research – studying of various phenomena, opening, the facts on the basis of unique on - line - sources.

For the first time we used web quest in practice of teaching discipline "Psychology and pedagogical work with younger school students with deviant behavior" in 2010-2011 academic year.

Students made web quest on a problem of one of types of deviant behavior younger school students and teenagers. The research of sources of emergence and development of the chosen type (form) of deviant behavior became the purpose of creation of web quest, namely:

1) social and legal aspect (information search about psychological, social, material aspects of the emergence chosen like deviance, a research of a problem of

the chosen deviance type to the Russian Federation and its consequences for society the analysis of information on actions of the state on solution of the problem of the chosen type (form) of deviance);

2) psychology and pedagogical aspect (causes; "portrait" of the child of this form of deviance; the main signs of this form of deviance of feature of work with parents of such child, the main strategy of behavior of the teacher with the child; to make "crib" for adults or the recommendation (the rule of work) with such child.

After completion of work on web quest the student most presentably presents the performed task in the form of the presentation of Power Point, the multimedia presentation (the slideshow which is followed by a lecture), web pages.

For the purpose of deeper judgment by students of a subject, development of creative abilities, cogitative operations and individual qualities of thinking of students us is used also such method as drawing up a sinkveyn.

In many sources синквейн is considered as the poem without rhyme consisting of five lines in which the subject on the studied subject is generalized.

During the work with sinkveyna it is necessary to follow on the following steps:

1. On the first line one word a noun which designates a subject of a sinkveyn registers.

2. On the second line there is a description of a subject two, three adjectives.

3. On the third line three words which describe actions within this subject are specified (there can be verbs and participles).

4. On the fourth line the phrase from four (five) words of different parts of speech expressing the relation to a subject is written. At this stage students can also specify a popular expression or the quote, a proverb.

5. On the fifth line one or two words specify a subject synonym.

On a lecture and practical training on disciplines of a psychology and pedagogical cycle for the purpose of fixing of material, assimilation and storing of new terms by students sinkveyna as individually, and in groups often are formed. By drawing up sinkveyn at students mental, creative, figurative and other abilities develop.

For example, during the studying and work with concepts the personality, development, socialization, the speech, education were made the following sinkveyna:

"Personality"

1. Personality.
2. Individual, unique.
3. Is not born, formed, becomes.
4. Result of process of education and self-education.
5. System of behavior of the individual.

"Development"

1. Development.
2. Irreversible growing.
3. Passes, changes, evolves.
4. The process directed to improvement.
5. Increase in complexity.

"Speech"

1. Speech.
2. Oral, written.
3. To speak, listen, read.
4. Represents psycholinguistic process.
5. Communication.

"Education"

1. Education.
2. Education, average, the highest.
3. To form, learn, study.
4. Purposeful cognitive activity of people.
5. Process.

During the work with sinkveyna it is possible to use the following receptions also: drawing up the story on a ready sinkveyn with use of the words and phrases which are a part of the offered sinkveyn; implementation of adjustment and improvement of a ready sinkveyn, definition and recognition of the concept according to the description offered in the sinkveena, etc.

Thus, the offered receptions allow students to synthesize the obtained information; make active a lexicon and informative independence; develop cognitive activity, mental abilities, etc. The developed listed qualities provide further activity of students in constant mastering knowledge and their application in practice.

Conclusion.

So, the listed interactive methods and forms allow to realize a subject - subject approach in educational space at the organization of the process of knowledge, and promote thereby development of critical thinking and an active and informative position of students that corresponds to urgent educational requirements of modern educational process.

Thus, the basic principles when using interactive methods and forms in the course of knowledge by students of disciplines of a psychology and pedagogical cycle will be the principles of dialogicity, cooperation, nature conformity.

Conclusions.

1. Having considered and having analysed psychology and pedagogical researches T. Yu. Merzlyakova, I. O. Zagashev, G. Lindsey, K. Hall, R. Thompson, etc., we came to a conclusion that the critical thinking is the process focused on a solution which demands the developed skills: abilities to analyze, draw conclusions, to interpret, estimate, argue.

2. Use of methods and receptions at development of critical thinking of students on a lecture practical training promotes development in students of the following skills and abilities:

1) works with the increasing and constantly renewed information stream in different fields of knowledge;

2) uses of various ways of integration of information;

3) statements of questions, independent formulation of a hypothesis and solution;

4) developments of own opinion on the basis of judgment of various experience, the ideas and representations;

5) reasoning of the point of view and accounting of the point of view of others;

6) ability to be engaged independently in the training (the academic mobility);

7) to participate in joint decision-making;

8) ability to cooperate and work in group, etc.

Besides, the mechanism of critical thinking includes the cogitative operations defining process of a reasoning and the argument: statement of the purpose, identification of a problem, promotion of hypotheses, reduction of arguments, their justification, forecasting of consequences, acceptance or rejection of the alternative points of view. It includes ability to apply basic intellectual abilities (knowledge and

understanding) to synthesis, the analysis and assessment of difficult and ambiguous situations and problems. Here it is possible to refer abilities of identification of a problem, clearing of a situation, the analysis of the argument, comprehensive study of a question, development of criteria for assessment of decisions and reliability of sources of information, avoidance of generalizations.

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Ukrainian language as foreign one in Bukovynian Medical State University: the problems of studying

Abstract: The experience gained by Ukrainian language section (the departments of social sciences and Ukrainian studies) in the Bukovynian State Medical University is considered; the problems of motivational factors are determined in studying Ukrainian language by foreign citizens; practical incarnation of medical equipment is defined in Ukrainian language lessons.

Keywords: functional methods, communicative competence, Ukrainian language as foreign one, BSMU, role game, problem situation.

Rating positions of Ukrainian specialized universities are growing with every year among the list of selected ones by foreign citizens for acquiring education and practice passing. The demand generates the necessity to search the ways of actualization, modernization and combinations in the whole number of methodical ways, forms of studying Ukrainian language as foreign one, which is appeared as the main key in getting necessary profession as it is the instrument for professional communication.

There are two ways of studying Ukrainian language as foreign one at modern stage of Ukrainian education system, which directly depend on educational institution politic. There are institutions of higher education where students-citizens from the other countries obtain professional education without appealing to the language of international communication, namely to English; Ukrainian language as the only state language of Ukraine is the main instrument for acquirement the knowledge and skills. Students from such universities have “iron” motivation in order to achieve maximum results in learning our language as it depends on their future profession. There is also another type of educational institution where foreign citizens acquire their education; the mediator language is English there, so all subjects are in English, except Ukrainian language lessons. The motivation is weakened in its students, as

they don't need to spend much time for profound learning of complicated inflectional language, if household level of communication is enough for spending several years in Ukraine. The first type of universities' arsenal is preparatory department, as a rule, where students actively learn Ukrainian language in mainstream regime. Furthermore, academic charge is bigger in this subject than in universities where only English is the language-mediator, as it is written in the students' contract.

The other side is connected with the fact that not all the universities have such a high level of English language in order to explain so complex disciplines (for example, anatomy, histology, atomic energetics) where educational services are provided to foreign citizens through the English mediation. That's why the government should create serious and professional preparatory centers for researching and teaching staff which would increase the level of teachers and lead out educational market of Ukraine to qualitatively new stage in providing educational services in the world.

The institution of higher education in Ukraine "Bukovynian State Medical University" belongs to the second type of universities and most of foreign citizens-students learn special subjects in English language, if they are obtaining medical profession in this institution. That's why Ukrainian language looks like "black sheep" among the others subjects. Preparatory department is not obligatory, the academic year does not always begin in September (it depends on the external factors, the abilities of countries-addresser's embassies). In connection with this situation, it is necessary to search the most optimal methodological ways for achieving qualitative indicators in subject knowledge and try to increase students' motivation level in order to learn the language.

The aim is to analyze the experience gained by Ukrainian language section (the departments of social sciences and Ukrainian studies) in Bukovynian State Medical University (further will be BSMU); to determine the problems of motivational factors in learning Ukrainian language by foreign citizens in the university; to outline practical embodiment of methodical instruments during Ukrainian language lessons.

Ukrainian language methodology as a science regards the process of learning Ukrainian language, studies regularities of acquirement the different levels of language, concentrates on the ways of finding the most resultative learning. There are researchers, who paid their attention to the problems of methodology connected with Ukrainian language teaching; for example, Yu. O. Zhluktenko [5], L. Bey,

T. Yefimov, T. Lahuta, B. Sokil, O. Trostynska, H. Tohtar [8], H. Shvets', V. Bezpalko, M. Klarin, B. Lyhachov, V. Monahov, H. Selevko. The problem of innovational methods was regarded by such scientists as O. Arlamov, M. Burhin, V. Zhuravlov, V. Zahvyazynskiy, N. Yusufbekova and others. The enumeration and analysis of manuals for foreigners as well as coverage of problems connecting with teaching Ukrainian language as foreign one are made in the investigation of Ukrainian scientist I. Kochan. In particular, L. Bey and O. Trostynska claim that it is necessary to consider not only psycho-pedagogical and socio-pedagogical approaches, but also specialization and education level, communicative needs, existing bases of knowledge, motivation level while talking about educational process of the mentioned subject [1, c. 170]. We share the opinion, that there is no only one method that would fit to all levels of language learning. The future of entire science stands behind complex and functional approaches to learning any subject. So, only harmonic combination of the whole methods' number and accumulated means of learning language material can create together holistic picture of lingual competence. "Numerous attempts directed into creation the most rational methodologies connected with foreign languages learning in the process of studying theory and practice development. Different modifications developed together with the basic methodology directions' development connected with foreign languages learning. Modifications of one methodology direction are methods which are characterized by general or close features of the main methodical direction" [2, c. 25].

The main motivation key of teachers who teach Ukrainian language as foreign one in BSMU is medical practice which is passed twice (at the beginning of the 4th and at the end of the 5th courses); this is the sole place in the university and in-hospital departments (except Ukrainian language lessons) where foreign students can speak Ukrainian. During practice passing students are able to communicate and negotiate with patients, to define anamnesis and use not only colloquial language but also use professional jargons.

There are a lot of problem points. First of all, it is necessary to emphasize that the amount of academic hours is reduced with every year; it makes impossible to proofread even general grammatical and lexical topics which are necessary for learning lingual and lexical minimums. For example, the most quantitative community in the university is Hindus; they learn and live in the Hindu subculture, due to their closeness they are inert while entering Ukrainian language environment.

On the other hand, there is one unpleasant fact that even those few people who actively communicate, learn not colloquial Ukrainian language from the streets, but ridiculous Russian surzhik (mixed language). This is nationwide problem, and today it is in the form of military actions on territory of Ukraine.

The second problem point is that according to the contract conditions, students (most of all English speaking Hindus and citizens of African countries who freely communicate in English) enter our university in order to achieve education in English, so the practice should be in the same language. However, it almost impossible to implement it in life, as approximately only 1 percent of patients from Chernivtsi hospitals are able to speak English. And if a doctor-teacher who leads the practice, translates simultaneously, the content of professional communication as well as close cooperation between trainee and patient will be lost.

Thirdly, the teacher of Ukrainian language as foreign one are Ukrainian philologists with English knowledge; they need English for explaining grammatical rules, translation and creation language situations and the whole row of language problems. However, Ukrainian philologists don't pass any medical trainings, so it is necessary to pass special courses in order to teach professional anamnesis and methodology doesn't help here, because, it is necessary to obtain knowledge of not only professional lexicology, which can be learnt solely, but anatomy, histology, and the whole row of medical subjects.

Professors from the department use the whole arsenal of pedagogical means and methods of teaching in order to increase the level of language education in foreign students; for example, beginning with program lessons, which are obligatory, finishing with various off-hour events, which are oriented into knowledge and individual abilities (for example, theme evening organizations, memorial days, etc., such as "Mother's Day", "Bukovynian Christmas", "Pusanka history").

Practical implementation of methodology instruments is consisted on several stages during Ukrainian language lessons in BSMU. As most of foreign citizens-students who study in this university don't have even elementary Ukrainian language knowledge while entering the first course, so the teachers have the problem called "tabula rasa" and they need to begin with propaedeutic topics which introduce general and cultural understanding of language. The comparative analysis with selective message about common and different aspects in Ukrainian and native language of the mediator is very important on the stage of alphabet and acoustic

peculiarities in Ukrainian language learning. The teacher's mission is very important here, as conduction of listening methods, repetition, speaking, sound pronouncing demand the teacher as leading person.

Grammatical stage is the most complicated one. According to Ukrainian language specificity, there are such complex phenomena as gender (division into 3 genders; the necessity to conform noun parts of speech with the dominant noun and with verb form) and case (7 case forms), diversified paradigm of endings in verb modes, etc. On our opinion, structural method involvement is the most adequate and efficient decision; this method consists in systematic linking of structural elements in language material.

The basic aim of educational process in Ukrainian language as foreign one section in BSMU is to promote development of active and creative personality of specialist, who would freely possess and apply foreign language in pre-professional activity and obtain maximum amount of skills for further effective implementation of professional knowledge. There are functional methods which are dominant in solving the problems of language competence, for instance: 1) oral approach and situational language learning (developers are Harold Palmer and A. S. Hornsbi); it consists in the fact, that all lingual peculiarities should be presented in "situations" which provide basic lexical vocabulary and parallel grammatical control which is being made during the process of words, phrases and prepared constant expressions learning [7, c. 350]. For example, during the students' first year, when they study lexical topics which should help them to enter the lingual environment, it is necessary to involve generally employed words from the easiest thematic blocks, as "Acquaintance" (polite formulas, lingual etiquette phrases), "Family" (correct adjustment of possessive pronouns with nouns – *moya mama*, not *miy mama* [my mother], genitive and accusative cases), "Shop" (adjustment of numerals with nouns, dative case), "In the city" (using the phrases with prepositions of locative case), "Food" (using the adjectives of color and taste; their grammatical combination with noun, instrumental case), "Appearance" (using nouns, adjectives, descriptive constructions denoting appearance, vocative case). Method of directional practice is another instrument of functional approach; it complements the previous method and gradually provides vocabulary phrases learning through multiple repetition. The only drawback of it is that a student is in certain frames of memorized material.

We realize that learning of grammatical rules as well as using the stable vocabulary during this process are only cursory means towards receiving practice and skills of oral speech. Because this is the most optimal way to learning and fixing any material [6, c. 17]. Communicative approach works on this stage, that stresses interaction role of final aim in language learning. The main instrument of this stage is development of skills to conduct dialogue communication (dialogue-agreement, dialogue-discussion, dialogue-sharing experience and thoughts). The pan educational orientation where the attention is paid on the fact, that one of the most important educational task is training of foreign citizens-students to comfortable everyday life in unfamiliar country and the best pedagogical conditions towards professional development [3, 510].

The method of role game is active and supplement while talking about communicative approach. Especially this method works at the stage of learning the lexical topics and construction of communicative situational dialogues. For instance, while studying such topics as "Shop" or "In the city" it is appropriate to use role games: "seller-buyer", "taxi driver-passenger", "dispatcher-taxi customer", "conductor-trolley passenger". Method of creating problem situations also accumulates intellectual abilities of the student. For example, "The first aid" topic can be problematic one (one of the student is suddenly sick, she loses consciousness and does not wake up...), where foreign students should adequately react on the complicated situation and deal with communication problems. This method is indispensable at the stage of medical vocabulary learning and forming the skills of professional communication as it is possible to create problem situations of disease anamnesis, medicine prescriptions, patient survey.

Another important component of active language learning in further courses (III, IV) is involvement to thematic texts, program themes of geographic tokens and phrases, namely phraseologisms and aphorisms, which form cognition of cultural values in the Ukrainian.

Method of lingual immersion is another actual one. In our case this is immersion into foreign language. In BSMU Jordanian students study according to this method as all their subjects are read only in Ukrainian (unlike Hindu or African communities in the university). Obviously, that's why Jordanian group of students is the best in communication in Ukrainian language, they have high motivation to learn lingual and extra-lingual phenomena.

Therefore, qualitative lingual students' education can't be without modern educational technologies implementation: interactive teaching methods, using of technical means of learning (computer and multimedia, worldwide web) [4, 154]. On this level, there is special server of remote education MOODLE, that is created for inner students' circulation in BSMU; there are theoretical and lexical accumulation of all program systems, presentations of separate communicative blocks, etc.

It is hard to choose only one method, which would cover wide arsenal of traditional and unconventional methods of teaching Ukrainian language as foreign one among enormous amount of modern methodologies and approaches to foreign language learning. To pick up only one method means to deprive students at one or another stages. In order to achieve prolific results and "communicative", not suffering from complexes students it is necessary to combine traditional and unconventional methods of teaching Ukrainian language as foreign one in institutions of higher education.

We have tried to outline circle of method in teaching Ukrainian language as foreign one, which we use in practice. Using these methods helps to form natural environment during the lessons, where students feel themselves maximum comfortably, promotes activation of all-around students' personality development, when they can conduct a dialogue, polylogue [opinion exchanging, where each participant has own and different point of view], create and describe problem situations, learn the program material quickly and efficiently.

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Transitory of yoga culture: creative cooperation between teachers and foreign students during physical training lessons at Bukovynian state medical university

Annotation: using exercises is considered, which are connected with spiritually-physical yoga practice in the process of physical training lessons as effective way of sanitation and health strengthening of medical students; questions about sanative direction of yoga are being analyzed as well as special methods of conducting physical training lessons with elements of yoga exercises.

Keywords: sanitation, yoga exercises, Hindu students, physical training, physically-spiritual practices.

Higher state educational institution of Ukraine "Bukovynian state medical university" is famous for the enormous amount of Hindu students' community. It allows to engage knowledge and cultural acquisitions from such a popular spiritually-physical practice as yoga with its direct representatives. That's why, physical training teachers practice creative cooperation with the students' youth during their lessons at BSMU.

Fitness is popular kind of physical training nowadays. Yoga is one of the most widespread offshoot of it. Ancient yogis did not do only exercises, they also professed their own philosophy consisted in harmony between body and soul. So, it is known that yoga is psycho-practice of changing consciousness; it is holistic system of various Indian spiritual and physical methods which exist in Hinduism and Buddhism in order to control psychology and psychophysiology of person. Yoga is the most important component of the spiritual culture of mankind, which originated in the bowels of Indo-European civilization, crossed all boundaries, and enriched with the intellectual achievements of many other cultures, flourished in the modern world, becoming Path, a practice and source of inspiration for many generations.

Historiography review. High attention is paid to different kind of sport in scientific and methodology literatures. In particular, different methods are described, however, method of lessons organization with yoga elements is described only partly and accent is not always on practical aspect of the problem. There are some scientists who investigated peculiarities of yoga for increasing efficiency of physical training lessons in Higher educational institutions, in particular, V. Dyukov and N.Skuryhuna [3]. Such scientists as T.E. Vasylyev and V.A. Voronin [5; 6] pay attention to the introduction of sport elements with sanative character and methodical enrichment of physical training lessons because of it. Our work is special because of description of creative contact and cooperation with yoga culture representatives. Such scientists as V.H. Boksha, V.A. Levando, A.E. Makarevych investigated the usage and functional properties of yoga exercises in the process of physical training. In particular, it was revealed that practice of yoga promotes breathing improvement and is serious prevention for spine, joints and nervous system diseases.

Aim of investigation is to study peculiarities of technique connected with using yoga exercises in the process of physical training lessons and organization cooperation with Hindu students by teachers from BSMU faculty of physical training.

Main information. Yoga is regarded as peculiar body philosophy and combines unique physical, moral, mental and spiritual charges, which together accumulate all hidden or “intoxicated” abilities of our body in the result of tiredness and stress situations. Yoga means balance of spirit that gives opportunity to look at life impartially in all its displays [1, c. 128]. There is big amount of physical training systems which promote development of muscle tissues which consist in using a lot of special exercises and methods. However, there is peculiarity of yoga exercises; yoga improves not only our body, but also expands mental abilities. People who practice yoga learn who to operate muscles at the level of feelings and listening to body and soul [2, c. 67].

Yoga consists in asanas (starting positions), pranayam (breathing), chakras (concentration on energy). Aim of yoga lessons is to fulfill positive impact on the process of physical improvement of students. In our case also is very important to conditionally return Hindu students in their native country, to improve their depressed being and home nostalgia. It will help to accumulate positive energy and increase working capacity during intensive studying. Yoga exercises are based on muscles stretching. This method is the most widespread for increasing flexibility and posture

improvement in frontal and sagittal balances. It is necessary to rotate these exercises with relaxation and meditative yoga elements.

Peculiar methodical experiment consisted in two stages and was conducted between Hindu students and teachers from BSMU physical training faculty. On June 21 solemn events dedicated to the celebration of the International Yoga Day were held. The first stage was consisted in that medical student Jani Mihir who is good at yoga practice and originates from the yogis' family, conducted introduction lecture for Ukrainian students who had physical training lessons; he told them about yoga history and peculiarities of this practice. Students found out basic concepts of this culture from his lecture. Mentions about yoga are found even in the oldest Sanskrit sources. It is unknown exactly when yoga occurred. Scientists consider Stone Age was the time of its occurrence. Archeological excavations let to confirm it, as there were found different statuettes with yoga poses in the last cities of Ind-Sarasvati civilization, dated back to 4th millennium B.C. in general, history of yoga can be divided into 5 main periods: Vedic period, Pre-classical period, Classical period, Post-classical period and Period of modern yoga. The word "yoga" means balance, union, connection, joint. Yogis' doctrine claims that people must be responsible for their health. Yoga philosophy states that violation of behavior laws, bad habits and actions, wrong pathogenic thoughts are the reasons of all diseases.

In order to receive only positive effect on our body from yoga exercises and obtain maximum relaxation and stress releasing, it is necessary to follow these rules: to do yoga only with positive mood; before doing asanas it is necessary to do warming-up; beginners should not stay long in one position, especially if it is complicated; exercises must be conducted with empty stomach (eat 3 hours before yoga, drink water 30 minutes after doing asanas); it is necessary to teach your body to be concentrated on separate organs as the action of all exercises is directed into almost all organs: liver, glands of the inner secretion, cardiovascular system, lungs, gastrointestinal tract [4].

Next stage was conduction of lessons with yoga elements. It is important to know that yoga practice promote health improvement and increasing of resistibility and endurance of the body. Important component of physical lessons with yoga lessons at BSMU is that Hindu students share their "primary" yoga knowledge while teachers introduce it into general lessons' structure, as there are different kinds of physical training: running, walking, active games, gymnastics, aerobics, pilates and

others. Students Jani Mihir (group 43, II course), Shukla Simran (group 51, II course) and Jai Vachani (group 53, II course) agreed to share their yoga knowledge. According to it, series of special lessons was conducted where teachers and those students were working under parity conditions and organized educational process together. In particular, those students conducted the beginning and ending of lessons, as yoga elements are better to conduct during the introduction and finish. Yoga culture consists in such parts as: asanas (starting positions), pranayam (breathing), chakras (concentration on energy). For introduction part, traditional exercises of generally-developing character were chosen:

- Complex of breathing exercises “Bhastraca”. “Bhastraca” is one of pranayama types, that is breathing exercises consisted in rhythmical diaphragmatic breathing. It has effective renewal impact on digestive and cardio-vascular systems. So, “Bhastraca” has sedative impact on whole body. Complex lasts for 3-5 minutes. However, it gives chance to customize students’ bodies for stronger physical charges. 46 students (3 groups) were doing “Bhastraca” exercises which were accompanied with verbal attitudes of student-master. It allowed to improve students’ being, give their bodies “oxygen portion” of health. Life in another country and constant stress situations because of intensive studying and medical subjects’ complexity cause depressions and broken spirit in foreign students. This breathing complex is for improvement mental being in students and return them to their hometown, at least mentally.

- Yoga complex “Surya namaskar” (greeting the sun) is one of the leading yoga culture technique. This technique is based on the cycle of 12 basic starting asana positions – periodical inclines forward and backward, bending and extension of spine and other parts of body. Flexibility of body and ability to weaken all muscles are very important on this stage. The main feature of this complex is to teach your body to be flexible, graceful and light that renew all organism’s potential. Initially, technique of each asana is worked out separately, later rotation of the complex is introduced. It is important to pay attention to breathing that must be synchronous with asanas and duplicate natural body rhythms. During increasing the angle of the pelvis slope, exercises must promote muscle extension of front part of thighs, lumbar part of long back muscles, square muscle, as well as strengthening stomach muscles and back side of thighs. Exercises “Surya namaskar” must be conducted for 20 minutes.

- Final part of physical training must be finished with using so called “pose of dead” – lying on back in shavasana (correct relaxation) that normalizes adrenalin and insulin in blood (for 5-10 minutes). Also exercises for breathing normalization can be used. Final stage is necessary for gradual recovery of body and all its systems after physical training. Its important element is breathing gymnastics – deep breath with parallel hands lifting and exhale with their lowering. In order to intensify the process of accumulation in the subtle body of additional energy, may be a lying position, combining together the heels of straight legs. The practice of shavasana frees the body from all stresses and prepares it for new stresses. If out of mastering well, it can become a partial replacement of sleep. A few minutes of practice of shavasana give a tired body an equilibrium, and a person gets the opportunity to work normally. This repose method is especially useful for medical students who do not have the possibility to sleep regularly due to the intensity of their education. Chavasan is a major therapeutic exercise for heart disease and hypertension. Yogis (those who engaged in yoga professionally) with the help of this asana reach the state of Yoga-Nidra – falling into a dream without dreams – and enter the scope of the Universal Mind. In cases of cervical osteochondrosis or persistent tension of the neck muscles (for example, during daily work at the computer) recommended starting the relaxation from the head.

Summary. Creative cooperation between teachers from BSMU physical training faculty and direct carriers of ancient spiritually-physical yoga practice promote improvement of the dialogue and abrasion of cultural barriers between foreign students and Ukrainian teachers. Also the results of this so called experiment revealed that lessons with yoga elements are being passed more productively than traditional ones and influenced on physical and psychological condition of students. Students withstood physical loading well, they were not overtired; they performed complexes of yoga exercises with pleasure.

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Booking of the mobile games of the first half of the 20th century investigated and included in the training process by hortingists

Abstract: The article analyzes the total level of physical education and sports in 1922–1944; the books of the largest circulation, different educational programmes, grants of the state of this period. The table chronologically shows the titles of the books on history of the development and usage of moving games with children, the total quantity of Ukrainian and Russian books on physical culture and sports which were published on the territory of Ukraine during this period of time. The attention of book publishing during the implementation of policy Ukrainization (1923–1932) – „golden age“ of Ukrainian Studies.

Keywords: mobile game, state publishing houses, on-line tutorials and train aids, athletic-sport movement, manuals and textbooks, publishing, politics Ukrainization, National Library, the Ukrainian intelligentsia, etc.

Topicality. Having analyzed the general state of physical education and sport from 1922 to 1944 we combine creative works of the representatives of the Eastern and Western Ukraine, though the most active processes in the development of scientific methodical and scientific-teoretical thought took place in the East of Ukraine. The formation of the USSR accelerated the processes, characterized by rapid development of the system of soviet science, formation of various scientific establishments, support of publishing houses by state powers. The Soviet power acknowledged sport to be one of the key spheres for the decision of the problems of military-physical training, forming of the persistence of the population, the effective means of education of young generations, and then the factor of foreign-policy influences. All in all from 1922 to 1944 about 740 names of books on athletic-sporting subject were published in Ukraine. Comparing to what we have presently, taking into

consideration the modern level of development of scientific informative technology and especially printing industry, the modern Ukrainian publishing houses have not yet achieved this rate [1, p. 5–6].

Major publishers have been in Kharkiv, Kyiv, Lviv, Odessa, Poltava, Dnepropetrovsk. In 1927, Ukrainian names were 25 % of editions, in 1931– 61 %. In these cities are actively working scientific societies [4, p. 263, 306].

As it is known from literary sources [5, p. 3] the term „history“ has an ancient Greek origin and means a recital or a story about the past life of human society. The ancients said: „Historia est magistra vitae“ – „History is a tutor of life“. The muse of history named Klio was the daughter of all-powerful Zeus and the goddess of memory Mnemosina. An ancient Greek historian and writer Gerodot (V B. C.) is acknowledged to be the father of history.

The first domestic historians of physical culture were: A. Gracheva, E. Zelikson, D. Kradman, P. Kunyeva, N. Novoselova, S. Sinitsina, G. Kharabush, A. Chalova-Shiman, and the research was continued in 1960s-1990s by: M. Bugrova, G. Demetr, V. Platonov, M. Ponomaryova, A. Ratnev, V. Rodichenko, V. Stolbova, V. Stolyarova, O. Sunik, B. Shiyani and others.

The term „physical culture“ was first used in England and in the USA in 1890 s. Under this term they understood the activity of man in society, which was directed at physical education and strengthening of health. To the world-wide theoretical substantiation of origin of physical culture there belongs the theory of game, the founder of which was the German philosopher Shiller. The supporters of his theory were philosophers K. Bücher and K. Gross (Germany), G. Spenser (England) and Leturno (France) [5, p. 3, 5].

From the end of the XIX and to the middle of the XX century there was the time, when scientific comprehension of nature of playing activity, the laws and factors of its pedagogical influence were to a great extent based on pedagogical and psychological researches of game (I. Boberskiy, W. Blyakh, R. Wowk, M. Goloborod'ko, O. Dzbanivskiy, N. Zadorin, I. Prokopenko, O. Sukhovska, W. Taraskin, T. Franko, P. Khaymovich, P. Kheyfets, M. Sheyko and others).

Horting is a national sport of Ukraine. This word comes from the name known in the world of the glorious island of Khortytsya, where Zaporizhzhya Sich was located, which played a progressive role in the history of the Ukrainian people. Today, the word „Khortytsya“ is associated with chivalry and self-sacrifice, courage,

and the upbringing of powerful and volitional men. That is why the sports martial arts Horting is symbolically named for the place of carrying out all the ancient Cossack sparrings, an open square, a living circle of the Cossacks – „Hort“, in which they were going to reveal the strongest, and in honor of the largest island on the Dnipro – „Khortytsya“. The idea of the emergence of horting as a complex self-improvement system based on physical, moral, ethical and spiritual upbringing is associated with the revival of the ancient folk traditions of the Cossacks, passed from generation to generation. Modern Horting is divided into two varieties – amateur and professional. The World Horting Federation (president E. Eremenko) founded in Kyiv confesses openly constructive cooperation with everyone who has an interest in developing the sport of Horting in the international arena [2].

A purpose of the article is the analysis of the development of the Ukrainian scientific – methodical thought in the field of physical education and sport in the first half of the XX century.

Presentation of research material. As the researcher O. Vatsuba stresses, among many fields of domestic culture, the branch of physical education and sport of the first third of the XX century is studied the least. And if the separate aspects were covered, they were covered partially or not on the scientific level. At the same time, at the beginning of the XX century in many European countries, including the territory of Ukraine, the new socio-cultural phenomenon – sport- gymnastic movement – is distinctly outlined. Its formation and development needed, indisputably, the proper scientific and scientific-methodical supplies. The origin of the newest scientific methodical basis of the development of athletic-sporting movement in Ukraine was taking place on the background of a number of military-political events, related to completion of the First World War, formation of the Soviet Union and others. Thus, it should be taken into consideration that Ukrainian territories remained disconnected, and nation-creating processes in the Eastern Ukraine, Bukovyna, Zakarpattya and Galychyna developed in different conditions and the organizers of physical movement actually could not exchange opinions on the problems of physical education and sport. Practically there was no exchange between the proper editions, scientists and practitioners did not have the opportunity for mutual and direct intercourse, for combining efforts, though the striving to cooperation was inherent to Ukrainians [1].

In 1920 s the books were printed in 2–5 thousand copies. Afterwards, especially in the middle 1930 s, the number of copies achieved 7–10 thousands. The following books had the highest circulation: Блях В. „Спутник по фізкультурі для всіх і кожного“ (Kharkiv, 1929, 20000 copies), Каминский Я. „Половая жизнь и физическая культура“ (Odesa, 1926, 20000), Бутовський В. „Фізкультура і здоров'я школяра“ (Kyiv, Kharkiv, 1935, 30000), Фадеев Н. „Як самому зробити санчата, ковзанці та литви“ (Kharkiv, 1930, 15000), Ентейс М., Хаймович П. „Пісні, танки та ігри для дошкільнят“ (Kyiv, 1938, 20000). This kind of literature was very popular [1, p. 8–9].

In 1920 s-1940 s there existed state publishing houses: „Herald of the physical culture“, „State publishing house of Ukraine“, „Proletarian“, „The young leninist“, „Physical training“, „Soviet school“ etc. Since 1934 these publishing houses printed books on physical-training and sports themes. The important thing is that during this period of time (1922–1944) most books were published in Ukrainian [1].

In 1923–1932 years a period called „Ukrainization“, which was limited to school, but covered: science, publishing, press, literature, theater, cinema, art, etc. Committee for the description of old Ukrainian during 1924–1929 he was made the description of 3730 books (editions to 1800). In the National Library in 1922 opened Ukrainica department. Book Fund Department in 1927 rose to 44,000 units. In 1929, new textbooks were published in Ukrainian 76.8 % and 23.2 % – in Russian language and ethnic minorities. Thus, the period of policy implementation Ukrainization be called „golden age“ of Ukrainian Studies. Writers of the Ukrainian diaspora called 30 years of the twentieth century era of „Executed Renaissance“. It eliminated 80 % of the most talented Ukrainian scientists, teachers, priests, writers and intellectuals were killed, and with them – intellectual tradition. The number of Ukrainian books in 1940 (42 %) was the same as in 1924 [1; 3; 4].

At this time different curricula and manuals which formed the programmatic normative base of the development of athletic-sporting movement were published. There should be marked: the Program and methods for PT circles (Kyiv, 1924), the Program and plan of physical education lessons in social education establishments and in organizations of Young Leninists (Kharkiv, 1925), Блях В., Степанов К. Фізкультура в школах, фабзаучах та робітничих клубах: Допомічник для студентів педвузів та підручник для викладання фізкультури в масовій школі профосвіти (Kharkov, 1927), programs of lessons for shooting circles (Kharkiv,

1928), the program on physical education: For post graduate education of pedagogical workers of labor schools training of the 1st concentre (Kharkiv, 1929) [1, p. 14–15]. In 1929, edited by V. Yastrzhembsky, V. Blyakh, M. Fil', three cycles of the programs on physical culture were consistently published.

Especially many (approximately 20 names) regulations of societies (Dynamo, Spartak etc.) were published in the end of 1930 s, among which were: Regulations of physical culture circle in the country (Vinnytsya, 1936); Regulations of athletic society of workers at primary and secondary school „Knowledge“ of Ukraine (Odesa, 1937); Regulations of voluntary physical culture society „Health“ of the Central Committee of the Union of medical-sanitary workers of Ukraine (Kharkiv, 1936) [1; 5].

In specialized literature the detailed works on different kinds of sport (chess, track-and-field, winter kinds of sport, shooting sport, gymnastics, sporting games, football, athletics, boxing, swimming, fencing, gorodki) were published on the basis of which Ukrainian scientific methodical thought was formed on the whole. The first documentary works on theoretical bases of physical education and sporting training appeared at the beginning of 1930 s: Журавль А. „Фізична культура тіла“ (Kharkiv, 1931), Журський Е. „Фізичне виховання“ (Lviv, 1938), work by Zharzh Deleni edited in Ukrainian „Механізм рухів і загальна педагогіка фізичного виховання“ (Kharkiv, 1931), Блях В. і Московкін В. „Загальна фізична підготовка“ (Kharkiv, 1931), Стремовський М. „Фізкультура в масовій школі“ (Kharkiv, 1931). On the whole in 1930 s there appeared a sufficient generous amount of books, devoted to the problems of physical education of primary school pupils, schoolboys and young people [1].

Alongside with the introduction in GPO (consisting of 3 theoretical and 22 practical requirements) complex in the USSR there appeared literature on this problem in Ukraine. The first brochures were published in 1931 in Kharkiv at the military publishing house „On guard“ under the title „Ready to labour and defence“, in Krivyi Rig – „Athlete! Be ready to labour and defence“ [1; 5].

In the middle of 1920 s and at the beginning of 1930 s in the theory of physical education and sport there begins to be actively outlined a medical-biologic direction. The work of the Kharkiv research worker Недригайливої О. „Телосложение и спорт“ (1928) was edited. Afterwards, with the participation of the director and leading specialists of the Ukrainian scientific experimental institute of physical culture in Kharkiv „Материалы по изучению влияния физкультуры на организм

человека“ by the collective of authors – Blyakh V., Kassandrov N., Nedrygaylova O. (1930); Блях В. „Показания и противопоказания при занятиях физкультурой“ (1930) was edited, interesting and up-to-date for that time was the 2nd edition of the book by Шаболов Д. „Серце й спорт“ (1931) [1].

In 1929–1931 a lot of editions on tourism appeared. Among the most significant works was the book by Погребецького М. „Путевая книжка туриста“ (Kharkiv, 1929), Шестоперова В. „Велотуризм“ (Kharkiv, 1931) etc. Alongside with the books of scientific- methodical character at the end of 1920 s in the middle of 1930 s the first works of historic-analitical character appeared. The work by Франка Т. „Історія й теорія рухання“ (Kolomyia; Lviv, 1925); and „Розвій рахунки серед українців“ (Lviv, 1925); Калічака І. „Руханка й спорт української еміграції в „Ч.С.Р.“ (Lviv, 1930) [1].

The Ukrainian authors paid attention to separate aspects of the development of the international sport movement (Olympic movement) and Ukraine's place in it: Дьомін І. „За червону спортивну єдність“ (Kyiv, 1934); Бейрле О., Вайцер Н. „Зимняя тренировка легкоатлета“ (Kharkiv, 1929, translation by A. Vinogradova); Russian and Ukrainian translations of books by Franz Kirberch „Спортивний масаж“ (Kharkiv, 1928, 1930, translation by M. Romanova) and others [1].

The practice of printing of books on physical culture and sport, history of the development and use of mobile games with children was interesting:

1. Гра: Пісні та гри для дітей дошкільного віку / Уложив по етнографічним матеріалам Р. Вовк. – Одеса: Державне видавництво Одеса, 1922. – 12 с.
2. Боберський І. Рухові забави і гри / Переглянув Франко Т. – 4-е вид. – Львів: Накладом „Сокола-Батька“, 1923. – 56 с.
3. Франко Т. Історія й теорія руханки. – Коломия; Львів : Накладом „Сокола-Батька“, 1923. – 200 с.
4. Суховерська О. Рухові забави й гри з мельодіями й примівками. – Львів, 1924. – 119 с.
5. Блях В., Голобородько М. Игры в мяч. – Харьков, 1924. – 18 с.
6. Блях В., Голобородько М. Избранные подвижные игры с 9 рисунками. – Харьков, 1924. – 28 с.
7. Митрусь. Розвага на дозвіллі. – Харків; Київ, 1925. – 142 с.
8. Тараскин В. Подвижные игры для взрослых: сборник. – Харьков: Пролетарий, 1925. – 77 с.

9. Блях В., Павлов С. Ігри та розваги для молоді. – Харків, 1927. – 38 с.
10. Голобородько М. Подвижные игры: Краткое теоретическое и практическое руководство для инструкторов физической культуры. – Харьков, 1927. – 117 с.
11. Хейфец П. Гри юних піонерів: Перевод з білоруської. – Харків: ДВУ, 1928. – 76 с.
12. Ордин Л. П., Тир К. Песни и игры пионерскому отряду. – Херсон: Червоний селянин, 1928. – 66 с.
13. Дзбанівський О. Пісні та ігри для дітей молодшого віку. – Харків: ДВУ, 1929. – 32 с.
14. Хейфец П., Задорин Н. Гри юних піонерів: Перевод з білоруської. – 2-е вид. – Харків: ДВУ, 1929. – 78 с.
15. Павлов С. Подвижные игры и развлечения зимой. – Харьков: ВФК, 1929. – 80 с.
16. Біляєв П. Організація дитячого дозвілля. – Харків: ДВУ, 1930. – 84 с.
17. Дитячі гри в дошкільних садках і молодших групах шкіл / М. О. Рабинович, Х. О. Рабинович, В. Я. Штарк, Д. Е. Щуп. – Харків: ДВУ, 1930. – 64 с.
18. Павлов С. Гри піонерів на майданчику. – Харків: ДВУ, 1930. – 24 с.
19. Павлов С. Зимові гри та розваги на повітрі. – Харків: Молодий більшовик, 1930. – 42 с.
20. Герценштейн С. Я. Ігри на повітрі для дорослих. – Харків: Медвидав, 1931. – 48 с.
21. Павлов С. Ігри та розваги на зимовому повітрі. – 2-е вид., випр. і допов. – Харків: На варті, 1931. – 80 с.
22. Шур Х. Фізкультурні гри, змагання та виступи. – Харків: На варті, 1931. – 132 с.
23. Вонзблейн Ю. І. Вправи та гри зі стрибавкою. – Харків: На варті, 1932. – 37 с.
24. Барбаріч В. Дозвілля дітей влітку на майдані. – Харків: На варті, 1933. – 44 с.
25. Московкін В. О. Масова фізкультурна робота, ігри та атракціони. – Харків: На варті, 1933. – 24 с.

26. Московкін В. О. Масова фізкультурна робота, ігри й атракціони. – Харків: Медвидав, 1934. – 64 с.
27. Коган Л. Пісня та гра на літньому майданчику в колгоспі. – Київ: Рад. школа, 1935. – 19 с.
28. Гри і розваги влітку / Упорядк. І. Прокопенко. – Київ: Рад. будів. і право, 1936. – 32 с.
29. Зимові розваги / Упорядкував І. Прокопенко. – 2-е вид., випр. і доповн. – Київ: Рад. будів. і право, 1936. – 58 с.
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So, we can conclude :

1. From 1922 to 1944, 740 books were published in Ukraine (513 books in Ukrainian and 227 – in Russian) on physical culture and sport, on the problems of the history of the development and conducting of mobile games with children [1].
2. Major publishers have been in Kharkiv, Kyiv, Lviv, Odessa, Poltava, Dnepropetrovsk. In 1927, Ukrainian names were 25 % of editions, in 1931 – 61 %. In these cities are actively working scientific societies [4, p. 263, 306].
3. In 1930s approximately 20 names of regulations of societies; various on-line tutorials, manuals on physical education and sport were published; the first documentary works on theoretical bases of physical education and sporting training, on tourism were printed; medico-biological direction was actively outlined in the theory; attention was paid to the separate aspects of the development of the international sporting movement (olympic movement) and the place of Ukraine in it.
4. Books on history of the development and use of mobile games with children were not published in 1926, from 1938 to 1944.
5. From 1923 to 1932 is a period which is called „Ukrainization“ in book-publishing [1; 3; 4].
6. Writers of the Ukrainian diaspora called 30 years of the twentieth century era of „Executed Renaissance“ [4, p. 305].

7. In 1930 89 % of books were published in Ukrainian. It was a splash of Ukrainian book-publishing [1].

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The influence of the relationship of the educator with the children on their emotional well-being

Abstract: The article discusses the theoretical position in the context of psycho-pedagogical study of emotional well-being in preschool age. Set basic positions of features of the relationship of the educator with children in preschool age. Presented a scientific position in the context of psycho-pedagogical studies, which interpreted the establishment of relations of the educator with the children through a style of pedagogic interaction. Identifies prerequisites for the formation of positive relationships between educator and children of preschool age.

Keywords: emotional well-being, the relationship of the educator with children, emotional problems, in preschool children, the style of pedagogical communication.

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Влияние взаимоотношений воспитателя с детьми на их эмоциональное благополучие

Аннотация: В статье рассматриваются теоретические предпосылки в контексте психолого-педагогических исследований изучения эмоционального благополучия в дошкольном возрасте. Задаются основные позиции особенностей взаимоотношений педагога с детьми в дошкольном возрасте. Представлены научные позиции в контексте психолого-педагогических исследований, в ко-

торых трактуется выстраивание взаимоотношений педагога с детьми через стиль педагогического взаимодействия. Определены предпосылки для формирования положительных взаимоотношений педагога с детьми дошкольного возраста.

Ключевые слова: эмоциональное благополучие, взаимоотношения воспитателя с детьми, эмоциональное неблагополучие, дети дошкольного возраста, стиль педагогического общения.

Одной из актуальных проблем на современном этапе развития общества является проблема эмоционального благополучия детей. Это отражено в основных документах, относящихся к системе дошкольного образования в России. В рамках Федерального государственного образовательного стандарта Дошкольного образования, сохранение психологического здоровья и эмоционального благополучия является одной из ключевых задач организации работы с детьми.

Значимость данной проблемы и повышенный интерес к ней обусловлен тем, что эмоциональное благополучие играет огромное значение для здоровья и развития личности ребенка. Гуманистическая парадигма современного дошкольного образования, акцент на признание самоценности дошкольного детства все больше обращает внимание на организацию взаимодействия между ребенком и взрослым, как условия сохранения его эмоционального благополучия.

Анализ разработанности данной проблемы показал, что на данный момент изучение эмоционального благополучия ребенка-дошкольника рассматривалось в разных аспектах: - содержание и характер общения в семье, как фактор эмоционального благополучия исследовали З. М. Богуславская, С. В. Корницкая, А. Г. Рузская; - общению с воспитателем уделяли внимание В. А. Горбачева, Т. Р. Каштанова, М. И. Лисина, Е. А. Панько и другие; - отношения со сверстниками в рамках данной проблемы рассматривали Л. Н. Башлакова, Т. И. Ерофеева, А. А. Рояк и т.д.

В условиях дошкольного образовательного учреждения сфера межличностных отношений ребенка включает в себя взаимодействие не только со сверстниками, но и со взрослыми. Поэтому важную роль в системе межличностных отношений дошкольников играет воспитатель.

Воспитатель оказывает огромное влияние на развитие личности ребенка, поскольку он является для ребенка авторитетной фигурой, а также источником организации деятельности, направленной на развитие ребенка. По мнению В.А. Петровского, личностно-ориентированная модель взаимодействия взрослого с ребенком является оптимальной для сохранения эмоционального благополучия ребенка. В тоже время, практика показывает, что многие воспитатели во взаимодействии с детьми не реализуют потенциальные возможности личностно-ориентированного взаимодействия, а стремятся доминировать над детьми, в результате чего во взаимоотношениях между ребенком и педагогом возникает недопонимание, возникают конфликтные ситуации, оказывающие влияние на эмоциональное состояние ребенка.

Таким образом, мы сталкиваемся с противоречием между потребностью современной практики в создании условий для эмоционального благополучия старших дошкольников в условиях ДОО и недостаточной разработанностью проблемы влияния взаимоотношений с воспитателем на эмоциональное благополучие ребенка обусловила выбор темы и цель нашего исследования.

Цель данной статьи: теоретически обосновать влияние взаимоотношений воспитателя с детьми на их эмоциональное благополучие.

Дошкольное детство считается периодом повышенного риска возникновения эмоционального неблагополучия в силу того, что эмоциональное развитие ребенка происходит достаточно интенсивно, но ребенок еще не в полной мере способен осознавать свои эмоциональные переживания и управлять ими. Кроме того, данная проблема становится более острой для детей в старшем дошкольном возрасте, когда происходит формирование основных личностных механизмов, и эмоции и чувства начинают подчинять себе все сферы жизни ребенка и оказывают влияние на становление его личности и на его поведение (Г.М. Бреслав) [1]. Эмоциональное благополучие ребенка дошкольного возраста является одним из важнейших критериев эмоционального развития в целом. В работах А. Д. Кошелевой, Н.М. Степаненко эмоциональное благополучие рассматривается как синоним к эмоциональному мироощущению, и определяется как сложное и обобщенное чувство, которое возникает у ребенка в результате взаимодействия множества ситуативных эмоциональных переживаний и выступает основой для формирования его отношений к окружающему миру, влияет на его переживание, познавательную сферу, на поведение ребенка в

стрессовых ситуациях [2], [3]. Л.А. Абрамян, И.В. Фаустова определяет эмоциональное благополучие как устойчивое эмоционально-положительное состояние человека (ребенка), основой которого является удовлетворение значимых потребностей определяет эмоциональное благополучие как сложное иерархически организованное чувство ребенка к миру, возникающее в результате переживаний, относящихся к разным уровням взаимодействия ребенка с окружающим миром [4].

Изучив подходы Л.А. Абрамян, Н.М. Степаненко, Г.А. Урунтаевой, И.В. Фаустовой по данной проблеме, мы солидарны с ними в том, что эмоциональное благополучие детей – это устойчивое эмоционально-положительное состояние, которое характеризуется преобладанием положительных эмоций, низкой тревожностью, сформированностью положительного отношения ко взрослым и сверстникам. Вместе с тем, понятие «эмоциональное благополучие» часто рассматривается исследователями в тесной взаимосвязи с понятием «эмоциональное неблагополучие». Эмоциональное благополучие характеризуется, прежде всего, с точки зрения эмоционального фона, который может носить либо положительный, либо отрицательный характер. Рассмотрение эмоционального неблагополучия осуществляется через призму тех же критериев, что и эмоционального благополучия. Это понятие соотносимо с понятиями «эмоциональное самочувствие» и «эмоциональное состояние» [5], [6]. Показателем эмоционального благополучия или неблагополучия ребенка является общий эмоциональный фон, который раскрывает не только направленность эмоций, степень их выраженности, но и влияние эмоций на активность ребенка, которая проявляется в его взаимодействии с окружающими людьми и в деятельности [6]. Рассматривая детерминанты эмоционального неблагополучия, исследователи отмечают следующее. Выделяются характеристики эмоционального неблагополучия ребенка: эмоциональная отстраненность; нарушение межличностных отношений; возрастание значимости внутренних переживаний; психическая неуравновешенность; доминирование отрицательных эмоций; неадекватность эмоционального реагирования ребенка при взаимодействии с окружающими людьми; нестабильность эмоциональных реакций [5], [6].

В психолого-педагогической литературе термином, отражающим совокупность характеристик взаимоотношений педагога с детьми, является термин

«стиль педагогического общения». В стиле педагогического общения проявляются особенности развития коммуникативных умений самого педагога, установившийся характер взаимоотношений между педагогом и детьми, индивидуальные особенности педагога и детей [6]. Кроме того, стиль педагогического общения отражает педагогическую культуру и профессиональную компетентность педагога, прежде всего, коммуникативную компетентность. Одной из распространенных классификаций стиля педагогического общения является классификация, в которой выделяются 3 основных стиля: авторитарный, демократический и либеральный.

Авторитарный стиль педагогического общения характеризуется тем, что педагог во взаимоотношениях с детьми занимает доминирующую позицию и препятствует полноценному проявлению самостоятельности и инициативности у детей. Дети в этом случае воспринимаются педагогом как объекты воспитательных воздействий. Чаще всего педагог, проявляющий авторитарный стиль, ориентирован на достижение определенных результатов у детей, формирование у них знаний, умений и навыков. При этом взаимоотношения между педагогом и детьми строятся на реализации позиции доминирования и подчинения. В случае нарушения ребенком требований педагога взаимоотношения нарушаются и возникает конфликтная ситуация. Полноценного межличностного общения между педагогом и детьми при данном стиле, как правило, не возникает.

Демократический стиль общения в большей степени отражает ключевые характеристики лично-ориентированного взаимодействия. Педагог, которому присущ данный стиль общения, проявляет в отношениях с детьми взаимоприятие и сотрудничество. Он стремится привлекать детей к совместному решению общих дел, проблем, создает условия для самореализации и проявления творческой инициативы, помогает детям в их развитии, способствует развитию умения общаться. Одной из важнейших характеристик данного стиля педагогического общения, имеющих значение в контексте обсуждения проблемы эмоционального благополучия, является то, что при данном стиле общения ребенок чувствует себя эмоционально защищенным, уверенным и свободно проявляет свою активность.

Либеральный стиль педагогического общения или попустительский стиль характеризуется преобладанием формального подхода у педагога к взаимодействию с ребенком. Педагог, принимая на себя позицию «невмешательства»

транслирует свою незаинтересованность в отношении того, что значимо для ребенка. Кроме того, при данном стиле педагогического общения педагог уходит от ответственности за результаты своей деятельности. К результатам такого подхода к воспитанию относятся нарушения эмоциональных связей между педагогом и ребенком, формирование эмоциональной дистанции.

Данные стили отражают направленность деятельности воспитателя в общении с ребенком и указывают на то, что в зависимости от того, как видит свою профессиональную деятельность педагог, какие задачи он перед собой ставит, в соответствии с этим он выбирает и модели поведения. Далеко не всегда эти модели являются конструктивными и оказывают положительное влияние на развитие личности ребенка. В зависимости от преобладающего стиля общения формируется и соответствующее отношение ребенка к педагогу, когда педагог готов к личностно-ориентированному взаимодействию с ребенком, сотрудничеству, проявляет интерес к совместной деятельности, транслирует принятие ребенка и уважение к нему, это побуждают ребенка проявлять свою активность, способствует установлению доверительных отношений, эмоциональной симпатии со стороны ребенка к воспитателю. В случае, если педагог ориентирован на дистанцирование или доминирование, у ребенка возникают негативные переживания, поскольку происходит неудовлетворение его потребности в общении, в принятии, и на фоне этих переживаний у детей могут формироваться страхи перед педагогом, повышаться агрессия в отношении педагога, которая часто имеет скрытый характер. Эмоциональной привязанности ребенка к педагогу не возникает, и совместная деятельность не приносит радости ни, ребенку, ни педагогу.

Таким образом, анализ литературы показывает, что наиболее полно характеристики взаимоотношений педагога с детьми проявляются в стиле педагогического общения. Стили педагогического общения могут оказывать как положительное, так и отрицательное влияние на развитие личности ребенка. Оптимальным во взаимоотношениях педагога с детьми является демократический стиль общения или активно-положительный тип отношения к детям, который способствуют гармоничному развитию их личности, созданию условий для раскрытия творческого потенциала детей, а также для их эмоционального благополучия.

Рассматривая особенности взаимоотношений педагога с детьми через стиль педагогического взаимодействия, мы можем выделить две основные линии влияния взаимоотношений педагога с детьми на их эмоциональное благополучие. С одной стороны, при установлении взаимоотношений между педагогом и детьми соответствующей личностно-ориентированной модели создаются благоприятные условия для эмоционального благополучия ребенка, поскольку ребенок чувствует эмоциональное принятие, поддержку, заинтересованность педагога и в свою очередь проявляет по отношению к педагогу эмоциональную симпатию, доверие. С другой стороны, воспитательные воздействия педагога, которые могут быть отнесены к авторитарной модели, препятствуют установлению отношений доверия, строятся на директивных методах и формируют у ребенка представление о зависимом и подчиненном положении в отношении со взрослым. В данной позиции ребенок не может испытывать чувство эмоционального комфорта, но у него развивается тревожность, страхи, отрицательные эмоциональные состояния, что оказывает негативное влияние на его эмоциональное благополучие.

Целью констатирующего этапа нашего исследования являлось изучение влияния взаимоотношений воспитателя с детьми на их эмоциональное благополучие. В исследовании приняли участие: 44 воспитателя и 496 детей дошкольного возраста. Для изучения влияния взаимоотношений воспитателя с детьми на их эмоциональное благополучие мы опирались на следующие критерии: стиль педагогического общения; эмоциональное состояние ребенка; наличие страхов и степень их выраженности; уровень тревожности; индивидуальные переживания ребенка дошкольного возраста по отношению к воспитателю.

По результатам констатирующего этапа исследования 20% детей экспериментальной группы и 25% детей контрольной группы характеризуются проявлениями эмоционального неблагополучия. Они часто испытывают негативные эмоциональные состояния во взаимодействии с другими людьми в условиях дошкольного образовательного учреждения. Также характерными проявлениями для детей этой подгруппы являются проявления тревожности, агрессивности и замкнутости. Изучение стиля педагогического общения показало, что демократический стиль общения характерен для 36% (8 человек) педагогов экспериментальной группы и 32% (7 человек) педагогов контрольной группы. Либеральный стиль общения выявлен у 32% (7 человек) педагогов эксперимен-

тальной группы и у 36% (8 человек) педагогов контрольной группы. По 32% (7 человек) педагогов в экспериментальной и контрольной группах ориентированы на авторитарную модель воспитания. Это может являться одним из факторов, влияющих на эмоциональное благополучие детей.

Результаты корреляционного анализа показали, что между стилем педагогического общения и эмоциональным благополучием существует несколько выявленных взаимосвязей. Первая взаимосвязь наблюдается между степенью эмоционального благополучия детей и демократическим стилем общения ($r=0,83$ $p<0.01$). Эта связь является положительной, и она свидетельствует о том, что чем более выражен у педагогов демократический стиль общения, тем выше степень эмоционального благополучия детей старшего дошкольного возраста. Это связано с тем, что демократический стиль общения, в котором педагог удовлетворяет потребности ребенка в общении, познании, проявляет по отношению к ребенку эмпатию, что обеспечивает эмоциональное благополучие ребенка. Также обнаружена отрицательная связь между степенью эмоционального благополучия и авторитарным стилем общения педагогов с детьми ($r= -0,89$ $p<0.01$). Выявленная связь указывает на то, что чем более выражен авторитарный стиль взаимодействия у педагогов с детьми, тем ниже степень эмоционального благополучия детей.

Выявленные результаты позволяют говорить о том, что наличие взаимосвязи между степенью эмоционального благополучия и взаимодействием воспитателя с детьми, является свидетельством того, что для обеспечения эмоционального благополучия детей важно осуществлять также и работу с педагогами, направленную на развитие у них навыков общения и навыков личностно-ориентированного взаимодействия с детьми. Характер взаимоотношений воспитателя с детьми дошкольного возраста является одной из ключевых характеристик, оказывающих влияние на эмоциональное благополучие ребенка в условиях дошкольного образовательного учреждения и на эмоциональное благополучие ребенка в целом.

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Analysis of Reasons, Forming Losses of Adult Population of Megalopolis

Abstract: In the article an analysis is conducted and the features of forming and dynamics of indexes of death rate of adult population of megalopolis are educed. It is set that in the structure of reasons of death leading places occupy illnesses of the system of circulation of blood, malignant new formations and external reasons - traumas and poisoning stably.

Keywords: megalopolis, dynamics of indexes of death, reasons of death

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Анализ причин, формирующих потери взрослого населения мегаполиса

Аннотация. В статье проведен анализ и выявлены особенности формирования и динамики показателей смертности взрослого населения мегаполиса. Установлено, что в структуре причин смерти ведущие места стабильно занимают болезни системы кровообращения, злокачественные новообразования и внешние причины – травмы и отравления.

Ключевые слова: мегаполис, динамика показателей смертности, причины смертности

Введение

Эколого-гигиенические проблемы, связанные с интенсивным ростом городов, численностью городского населения и его деятельностью, относятся к значимым явлениям современности. В крупных промышленных городах, где сосредоточены производственные объекты различного профиля, в окружающую среду одновременно поступают значительные количества разнообразных химических веществ, среди которых немалую долю составляют высокотоксичные соединения 1-2 классов опасности. Быстрый рост автомобильного парка в мегаполисах становится причиной возникновения дополнительных экологических рисков для здоровья населения [1, 10]. Оценка влияния химического загрязнения окружающей среды на здоровье населения является сложной гигиенической задачей. К рекомендуемым ВОЗ индикаторам здоровья при воздействии экологических факторов риска относятся демографические показатели, заболеваемость и физическое развитие. Среди медико-демографических показателей смертность является традиционной характеристикой потерь здоровья населения, а ее показатели рассматриваются как наиболее информативные, поскольку их изучение осуществляется на основе государственной регистрации [2]. В связи с тем, что административные районы мегаполиса испытывают неоднородную техногенную нагрузку, изучение показателей смертности в разрезе отдельных районов имеет существенное значение в разработке принципов ранжирования территорий города по степени интенсивности и опасности воздействия вредных факторов окружающей среды на здоровье населения для принятия адресных управленческих решений по улучшению медико-экологической ситуации [10, 11].

Цель исследования: провести анализ и выявить особенности формирования и динамики показателей смертности взрослого населения крупного промышленного города на основании комплексного изучения потерь здоровья.

Материалы и методы

Исследование проводилось в рамках выполнения научно-технической программы «Разработка системы санитарно-гигиенических и профилактических мероприятий по оптимизации состояния окружающей среды и здоровья

населения региона с высокой антропогенной нагрузкой» на примере крупного промышленного города Казахстана – г. Алматы.

Объектом исследования являлся процесс формирования потерь населения в результате смертности в целом по г. Алматы и в разрезе трех городских административных района (Жетысуский, Алмалинский и Турксибский). Единица наблюдения – случай смерти от всех причин. Классификация причин смерти осуществлялась в соответствии с Международной классификацией болезней десятого пересмотра (МКБ-10). Предметом анализа служили показатели смертности населения в половозрастном аспекте в возрастной группе - взрослые лица (18 лет и старше).

Статистическая обработка материала выполнялась с помощью пакета программ STATISTICA 6,0. Рассчитаны интенсивные и экстенсивные показатели: структура причин смертности, коэффициент общей смертности (КОС) – на 1000 населения, показатели смертности в половозрастном аспекте в разрезе отдельных причин смерти по классам болезней – на 100 тыс. населения соответствующего пола и возрастной группы.

Результаты и их обсуждение

Причины смертности взрослого населения крупного промышленного города можно рассматривать как индикатор общественного здоровья. В связи с этим, изучению уровня, динамики и причин преждевременной смертности взрослого населения трудоспособного возраста посвящено много научных исследований [3-8]. Анализ коэффициента общей смертности (КОС) всего населения г. Алматы показал его достоверное снижение за изучаемый период как в целом по городу, так и в разрезе административных территорий с различными вариациями уровня и динамики показателя по годам периода. Как показали расчеты средний показатель общей смертности населения в разрезе районов превышает таковой в целом по городу. При этом наиболее неблагоприятная ситуация отмечена в Турксибском районе, где смертность населения по всем годам периода в 1,3 раза выше среднегородского показателя. Однако в целом за период в районе отмечена положительная динамика показателя с высоким отрицательным темпом прироста (-) 25,8%.

В Жетысуском районе динамика показателя волнообразная, в течение периода отмечались подъем (11,7‰ - в 2008 г.) и спад (8,9‰ – в 2010 г.) уровня смертности, затем вновь подъем до 9,5 на 1000 населения и к 2013 г.

показатель практически вернулся к урону 2007 г. с незначительным отрицательным темпом прироста (-)3,4%. Более стабильная ситуация отмечается в Алмалинском районе, хотя в течение всего периода уровень смертности был выше, чем в среднем по городу. Темп прироста составил (-)13,3%. В структуре общей смертности населения г. Алматы ведущими причинами являются болезни системы кровообращения, новообразования, травмы и отравления, болезни органов пищеварения и органов дыхания, которые в совокупности составляют среди всех причин смерти более 80,0%. Болезни системы кровообращения, несмотря на снижение уровня за исследуемый период, стабильно занимают первое ранговое место среди причин смерти всего населения мегаполиса, составляя в среднем за 2007-2013 гг. $413,94 \pm 73,68$ на 100 тыс. населения с удельным весом $54,64 \pm 1,52\%$ от всех причин смерти. Второе ранговое место занимают злокачественные новообразования со средним показателем за период $123,94 \pm 2,82\%$ (50,02±6,65%). На третьем ранговом месте находятся травмы и отравления, среднегодовой интенсивный показатель составил $98,17 \pm 12,74$ на 100 тыс. населения ($12,3 \pm 1,37\%$). Четвертое и пятое места занимают болезни органов пищеварения и дыхания – $41,05 \pm 3,75\%$ ($5,01 \pm 0,48\%$) и $32,88 \pm 5,15\%$ ($4,18 \pm 0,81\%$) соответственно. На шестом ранговом месте находятся инфекционные и паразитарные болезни с интенсивным показателем $15,65 \pm 2,18$ на 100 тыс. населения, в структуре причин смерти на долю этого класса болезней приходится $1,9 \pm 0,17\%$. Ранговое распределение ведущих причин смерти населения г. Алматы представлены на рис. 1.

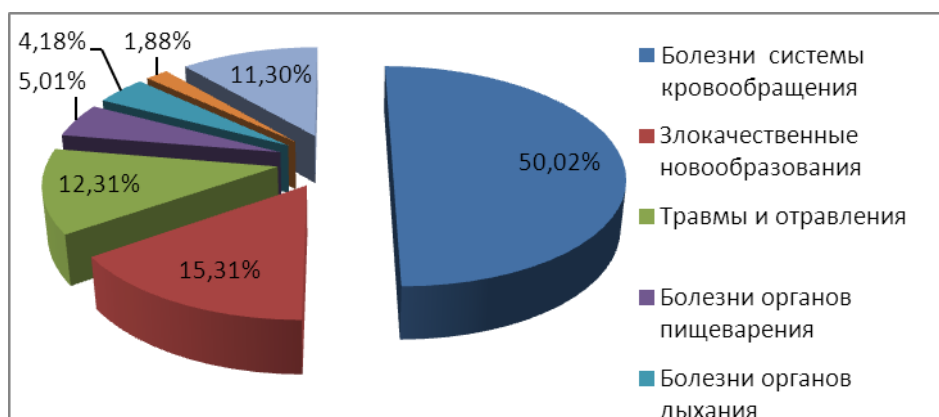


Рис. 1. Ранговое распределение ведущих причин смерти населения г. Алматы за период 2007-2013 гг. (%)

В динамике за исследуемый период наблюдается устойчивое снижение интенсивного показателя смертности населения от сердечнососудистых заболеваний с отрицательным темпом прироста (-)55,85%. Также можно отметить положительную динамику в плане снижения смертности населения по причине травм и отравлений. За период с 2007 г. по 2013 г. уровень смертности по данной причине в целом по г. Алматы снизился в 1,46 раза с 122,21 на 100 тыс. населения до 83,53‰. Также можно отметить снижение уровня смертности населения в связи с инфекционными и паразитарными заболеваниями в 1,76 раза - темп прироста составил (-)38,6%.

Смертность населения г. Алматы от злокачественных новообразований в динамике за исследуемый период остается достаточно стабильной с наметившейся тенденцией к снижению с 2011 г. с 131,18 на 100 тыс. населения в 2010 г. до 118,72 на 100 тыс. населения – в 2013 г. Несмотря на изменение интенсивного показателя по основным ведущим причинам смерти населения, ранговое распределение классов болезней в структуре общей смертности не изменилось. Исключение составляет 2007 г., когда удельный вес травм и отравлений среди всех причин смерти превалировал над долей злокачественных образований – 15,8% и 14,1% соответственно. В 2008 г. показатели уравниваются и, начиная с 2009 года, злокачественные новообразования стабильно занимают второе место с ростом удельного веса показателя к 2013 году до 16,4%. Смертность населения г. Алматы от таких социально-значимых причин, как туберкулез, ВИЧ и СПИД за период 2010-2013 гг. имеет разнонаправленные тенденции. Отмечена устойчивая позитивная динамика показателя смертности от туберкулеза. За исследуемый период уровень снизился в 1,9 раза с темпом прироста (-)48,9% и в 2013 г. достиг показателя 4,9 на 100 тыс. населения, что в 1,12 раза ниже среднего показателя по Казахстану. По данным Центра по профилактике и борьбе со СПИД г. Алматы в городе в 2013 г. по сравнению с 2012 г. смертность от сочетанной инфекции «ВИЧ и туберкулез» снизилась на 33,0%. Однако динамика смертности от изолированной ВИЧ-инфекции и СПИДа за исследуемый период имеет отрицательный тренд. Так, уровень смертности от ВИЧ увеличился в 1,6 раза с 6,3 на 100 тыс. населения в 2010 г. до 10,0 на 100 тыс. населения – в 2013 г., а от СПИД – в 2,6 раза (0,8 -2,1‰ соответственно).

Ранговое распределение районов по уровню смертности показало, что в Алмалинском районе удельный вес заболеваний сердечнососудистой системы превышает таковой в Турксибском и Жетысуском районах в 1,3 раза и в 2,2 раза соответственно. Необходимо отметить, что если в Алмалинском и Турксибском районах удельный вес злокачественных новообразований в 3,1-3,6 раза ниже доли сердечнососудистых заболеваний, то в Жетысуском районе данные показатели находятся практически на одном уровне.

Таким образом, проведенный анализ показал, что общая смертность населения г. Алматы за период 2007-2013 гг. характеризуется положительной динамикой со средним показателем по городу $8,23 \pm 0,54$ на 1000 населения с темпом прироста (-)21,7%. Превышение среднегородского показателя отмечено во всех изучаемых районах города. Наиболее неблагоприятная ситуация отмечена в Турксибском районе ($10,58 \pm 0,94\%$). В Жетысуском районе динамика показателя неустойчивая со средним показателем $9,58 \pm 0,81\%$, и незначительным темпом прироста (-)3,4%. Более стабильная ситуация отмечена в Алмалинском районе ($9,47 \pm 0,39\%$) с достоверным снижением КОС на 13,3%.

Полученные результаты показывают актуальность разработки и внедрения комплексных медико-социальных программ, направленных на снижение предотвратимой смертности среди лиц трудоспособного возраста от ведущих причин – болезней системы кровообращения, новообразований, болезней системы пищеварения и органов дыхания, травм и отравлений.

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Right is on marriage same-sex persons at the example of Ukraine and the United Kingdom

Abstract: This article is devoted to solving legal problems related to violation of the right to marriage of same-sex people. Various aspects of this problem were analyzed from the point of view of Ukrainian and British legislation.

In Ukraine, at the legislative level, the issue of the right to marry same-sex persons (as there is no legalization of marriages with such persons) is still unresolved, as to the legal consequences of changing the sex of one of the spouses during marriage.

The author notes that such persons retain all the complex of personal non-property and property rights and obligations arising from the marriage, after the change of sex. Attention is also paid to the ECHR problem on these issues. The article examines the experience of the UK and states that the rights of transgender people in this country are more regulated in comparison with Ukraine. The Gender Identity (Protected Characteristic) Bill 2016-17 was analyzed, which was not adopted, but is important, as the gender identity should be protected and set up correctly for transsexuals.

Keywords: violation of family rights, transgender person, ECHR ruling, marriage, parental rights, gender.

1. Introduction

Increasingly, there is information in publications that homosexual persons have been having problems in violation of their right to marriage.

2. Actuality of the research subject

In Ukraine, persons who are gay and bisexual from birth or as a result of sex change are not entitled to marriage. Accordingly, there are reasons to believe that their right to marriage is violated. In addition, if a person who is already married has

changed sex, this fact may call into question the validity of such a marriage and affect the rights and interests of the other spouse or children.

Thus, the purpose of the article is to determine the legal status of same-sex persons and the form of their union, introduction of suggestions on the legal basis for regulating the family status of same-sex persons.

3. The degree of problem`s development

In art. 21 of the FC of Ukraine provides for the concept of marriage only between a woman and a man. Consequently, only marriages concluded between a man and a woman are legally valid, which makes it impossible for the same-sex persons to get married. Accordingly, the right to marriage have only persons of different sexes.

Ukrainian legislation does not contain special provisions, regulating the family rights of same-sex persons, therefore, in such relations the general rules from the FC of Ukraine and other normative legal acts in the field of family law are being applied.

Currently, no other forms of unions for same-sex couples are foreseen in Ukraine. But the establishment at the legislative level of such forms is a prerequisite. Let's suppose that same-sex partners live together, so their relationship is similar to actual marital relationships since they are a family without registration of a marriage.

Analyzing the case "Oliari and Others v. Italy " [1], the ECtHR has adopted a decision, requiring the state to legally create a form of union that is different from marriage but legitimizes the union of same-sex couples, since "the right for union must be in all couples, including same-sex couples ". One can assume that such a form of union as a civil partnership can appear in Ukraine.

Although the Government of Ukraine has for a long time avoided discussing of this issue, it has now recognized the existence of this problem and the need for its rapid resolution by adopting an Action Plan for the implementation of the National Human Rights Strategy for the period up to 2020. In the Government Order No. 1393-p of November 23, 2015, paragraph 105 provides for the development and submission to the Cabinet of Ministers of Ukraine of a bill on legalization of registered civil partnership in Ukraine for heterosexual and same-sex couples. Consequently, this bill envisages the legalization of civil partnership as an alternative to traditional marriage, which will regulate the property rights for heterosexual and same-sex persons who are not in a traditional marriage. The emergence of the rights and responsibilities of their civil partnership in accordance with the Draft Law of Ukraine

"On Civil Partnership" for partners only if they have entered into an agreement of civil partnership and it is notarized. This agreement will regulate personal non-property and property rights and obligations of partners, the grounds of occurrence, content of personal non-property and property rights and obligations. That is, in Ukraine there will be two forms of registration of the marital status: marriage (registration in the Civil State Registry Office) and civil partnership (the conclusion of the agreement in written form and certified by a notary). A similar practice exists in the Netherlands (the law "On Registered Partnerships", 1998).

The Civil Partnership Act 2004 [2] in the UK provides an opportunity for two persons of the same-sex to conclude a registered civil partnership. The same-sex couples who have entered into a partnership have equal rights and responsibilities, as well as those who are married, are entitled to adoption of children.

Based on the analysis of these countries, one can conclude that civil partnerships are divided into the following types: 1) civil partnership for same-sex and heterosexual couples; 2) civil partnership for same-sex couples.

4. Disclosure of the main text

If a person faces problems due to the fact that her/his internal perception does not correspond to the sex, identified from the birth, such person is called "transgender" or "transsexual". The process of changing the body through medical interventions is called sex or gender change.

The issue of gender change in Ukraine is regulated by the Order of the Ministry of Health as of 03.02.2011, No. 60, which approved the Medico-biological and socio-psychological indications for the change (correction) of sexual affiliation as of 05.10.2016, No. 1041.

There are no provisions in the Ukrainian legislation, prohibiting persons who have changed their sex, to marry, because the person, after all the procedures, receives a Ukrainian passport and, therefore, may have the right to marry. However, if a person, who has changed a sex in the past, marries, she/he must necessarily inform about it. In the opposite case, the right of knowledge about the health state of the bride/groom will be violated, as provided by art. 30 of FC of Ukraine, which may be the ground for declaring marriage invalid. According to our opinion, the art. 30 of the FC of Ukraine should be amended with the necessity of statement about the change of sex of the person with whom the marriage is expected to be concluded.

In Ukraine it is currently not possible to provide official recognition of sex change without surgical intervention. As a result of amendments to official documents on the change of sex after surgery, there are legal consequences that may affect the rights and interests of the other spouse or children. Therefore, the current family law of Ukraine does not adequately regulate the issues of ensuring the rights and legitimate interests of the subjects under study (in particular, property and obligation rights as spouses, parents and children).

The first aspect of family law for a transgender person is the right to marriage and guarantee of respect for privacy. In a form of privacy, this right is enshrined in the English version of art. 12 of the Universal Declaration of Human Rights of 1948.

The right to privacy can be violated by its non-recognition by the state, in particular, it concerns the lack of legalization of same-sex marriages and the recognition of family rights of persons in these unions.

When changing sex, the legal share of marriage with such a person can be considered as the termination of marriage through the announcement of her/his death (socially), but this reason does not exist in art. 46 of the Civil Code of Ukraine, or as the declaration marriage invalid, as this situation leads to contradiction, because marriage is a union of man and woman. Thus, on the one hand, the introduction of amendments to art. 104 of the FC of Ukraine regarding the change of sex as a ground for termination of a marriage can be interpreted as interference of the state into the private and family life of a person, on the other hand, such an approach can regulate the family status of the person who changed the gender. In addition, these individuals may live together as they are free to choose their place of residence on the basis of the Law of Ukraine "On Freedom of Movement and Free Choice of Residence in Ukraine" as of 11.12.2003 No. 1382-IV, and have a separate property and voluntarily take care of a common child. If Ukraine legalizes a civil partnership, then they will be able to live as a family in the form of a registered union.

In recent years, the term "surgical intervention" has disappeared in European practice as a basis for changing the gender of a person. On the same approach, the British "Act on the review of gender" [3] is based. That is, the state grants permission for transsexuals to change gender in the official documents without performing a surgery. Hence, this is primarily due to the feelings of such individuals, in order to be more in line with their gender identity.

The situation with transgender rights in the UK is very positive. In particular, the "Gender Recognition Act 2004" law of Great Britain to a large extent (with the exception of the requirement to terminate of marriage) can be considered as an example of good practice [4]. In particular, in this country for the change of sex in the passport, they do not require the termination of marriage relations.

The practice of the ECtHR on the issue of the possibility of marriage for transsexuals, who have had changed the sex by surgery, has experienced a significant evolution. At first, the ECtHR did not recognize a violation of article 12 of the Convention, for example, "Rees v. the United Kingdom "(1986) [5]. At the same time, the attention was drawn to the need for periodic review of the need for changes in legislation in this area.

The ECtHR in the "I. v. the United Kingdom "(2002) [6] case, has noted that the state can not deny a transsexual to conclude marriage because of the sex change.

In "Christine Goodwin v. the United Kingdom " (2002) [7] case, the ECtHR noted that the gender was determined not only by biological criteria, but article 12 of the ECHR, as it used to be before, is not applied to the same-sex marriages that are also banned in the UK (at the time of 2002) .

The ECtHR in the case of "Parry v. the United Kingdom" (2006) [8] found the complaint inadmissible, since the requirement of divorce in this case resulted from the prohibition of same-sex marriage in English legislation. The presence of the registered partnership institute was recognized as a factor, contributing to a proper balance between the public interest and the applicants' interest.

Due to the fact that gender equality affects not only the equality of rights between men and women, but also between same-sex and transgender people, the adoption of Gender Identity (Protected Characteristic) Bill 2016-17 [9] is necessary for Great Britain.

On February 24th the Gender Identity (Protected Characteristic) Bill 2016-17 is expected to have its second reading debate in the House of Commons. The purpose of the Bill is «to make gender identity a protected characteristic under the Equality Act 2010 in place of gender reassignment and to make associated provision for transgender and other persons. However, as a General Election has now been called and Parliament will be dissolved from 3 May 2017, the Bill falls and no further action will be taken.

Comparison of cases, examined by the ECtHR on the issue under study, shows that there are more progressive opinions in the United Kingdom regarding the right for the same-sex marriage. This indicates that the ECtHR is involved in the formation of a single "gender identity" in Europe, which, in comparison with traditional heterosexual identity, will be properly regulated in a legal sense.

5. Conclusions. The perspectives for the further research

1. In Ukraine, at the legislative level, the question of the form of a union of same-sex persons (as there is no legalization of marriages with such persons) and the legal consequences of the change of sex by one of the married couple in the marriage remains unresolved.

2. The rights of transgender people in the UK are more regulated than in Ukraine and are a good ground for it. The Gender Identity (Protected Characteristic) Bill 2016-17 was not adopted, but there is a hope that gender identity will be protected and properly established.

3. The analysis of the practice of the ECtHR confirms the necessity of adopting regulations that will regulate the rights and obligations of same-sex persons in any state.

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The principle of fractal harmony in the spiritual musician-teacher's self-development

Abstract. The article substantiates the principle of fractal harmony in the musician-teacher's spiritual self-development. It is proved that the basis of spiritual self-development of musician-teacher is the integrity of the individuality. Were determined the approaches and pedagogical diagnostics of levels of formation of the personality's integrity. The method of formation of personality's integrity of the musician-teacher with the use of training exercises and techniques based on the principle of fractal harmony is developed.

Keywords: Integrity. Principle. Fractal harmony. Spiritual self-development. Musician-teacher. Post-non-classical university space.

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Принцип фрактальної гармонії в духовному саморозвитку музиканта-педагога

Анотація. У статті обґрунтовано принцип фрактальної гармонії в духовному саморозвитку музиканта-педагога. Доведено, що в основі духовного саморозвитку музиканта-педагога лежить цілісність особистості. Визначено підходи та здійснено педагогічну діагностику рівнів сформованості цілісності особистості. Розроблено методику формування цілісності особистості музиканта-педагога

з використанням тренінгових вправ і технік на основі принципу фрактальної гармонії.

Ключові слова: Цілісність. Принцип. Фрактальна гармонія. Духовний саморозвиток. Музикант-педагог. Постнекласичний університетський простір.

У сучасних умовах стрімких соціальних та культурних зрушень, що відбуваються в онтологічних та епістемологічних уявленнях про світ, чітко простежується феномен змін, які потребують глибинної культурної трансформації всіх сфер суспільного життя, зокрема, й в освітній сфері. Так, наразі домінуючі тенденції розвитку світової спільноти зумовили становлення постнекласичної освітньої парадигми, яка детермінується переорієнтацією суспільства на духовний розвиток людини, її особистісних якостей та ціннісних вимірів щодо пізнання світу. Відтак у методології сучасного соціально-гуманітарного знання виникає потреба включення в її обіг категорії людини та, відповідно, розширення категоріального ряду такими духовно-психологічними феноменами як цілісність, суб'єктність, індивідуальність, особистість, духовність, духовний потенціал тощо. Визначальним чинником, що забезпечує збереження та примноження сутнісної природи людини є освіта. Утім, доводиться визнавати факт, що існуючі уявлення про освіту як способу трансляції знань не відповідають викликам сучасності. Сучасна освіта продовжує продукувати технократичний світогляд, односторонні прагматичні настанови, а практичні форми, методи й засоби великою мірою відповідають класичній та некласичній освітнім парадигмам, у той час як постнекласична дійсність має інші цілі та пріоритети.

Одним із шляхів подолання методологічної кризи в педагогіці, у тому числі й мистецькій педагогіці, вчені (зокрема, В. Пічугіна та В. Сєріков) називають зміни уявлень про місце педагогіки в просторі антропологічних наук. Педагогіка мистецтва також потребує цілісного знання про людину – про антропоформувальні чинники епохи, про провідні тенденції розвитку людини [1]. Автори стверджують, що в нинішній педагогічній реальності, яка прагне до цілісного осягнення й відтворення людини, стають тісними традиційні межі педагогічного раціоналізму, знеособлених дидактичних і методичних систем. Педагогіці мистецтва, так само як і загальній педагогіці, потрібна інтеграція гуманітарних сфер людського буття, що дозволяє цілісно структурувати метапредметні знання про педагогічні явища.

Домінуючим джерелом цілісності освітнього процесу є наявність у педагога гармонійного образу цього процесу (ідеї, концепції, технології, досвіду). Ознаки цілісності в цьому випадку – наявність достатніх підстав для досягнення мети педагогічної системи, її здатності до саморозвитку, здатність породжувати «надрезультат». Такий результат можливий лише при наявності вихідної основи побудови освітнього процесу як *єдності особистості, завдань та результатів, системи компетентностей педагога*.

Цілісність освітнього процесу виникає як результат взаємодій, що ґрунтується на принципі фрактальної гармонії. Цей принцип, на думку А. Маджуги, І. Сініциної [2], утверджує ідею щодо необхідності цілісного розвитку людини – духовного (емоційного, естетичного, інтелектуального) та фізичного як системи, де кожний елемент знаходиться у взаємозв'язку і взаємозалежності один з одним. Ця обставина визначає необхідність інтеграції природничо-наукових та соціально-гуманітарних уявлень про людину як багатовимірного феномену і реалізації в сучасній освіті таких концептуальних підходів як антропоцентриський, системно-синергетичний, феноменолого-герменевтичний, фрактально-резонансний. Зазначені підходи відповідають постнекласичній освітній парадигмі, яка передбачає переорієнтацію цілей на внутрішній світ людини, її існування, цілісне здоров'я.

Антропоцентриський підхід розвивається в межах педагогічної антропології і заявляє про себе як напрям, що інтегрує знання про людину як цілісну істоту, повноправного представника виду *Homo sapiens*, учасника виховного процесу. У ситуації, коли зміст освіти не регламентований пошук новому «об'єктиву» має призвести до побудови нової методики – антропологічної, відповідальної за особистісні результати освіти [3].

Системно-синергетичний підхід. Дослідження мистецтва як відкритої самоорганізованої системи свідчать про те, що організація художньої мови ґрунтується на принципах природної самоорганізації: симетрії, ритмічної будови в просторових і часових структурах, прояву дії структуроутворювальних сил Всесвіту і т.п. Евристичні перспективи нових методологічних принципів є плідні при вивченні механізмів творчого потенціалу майбутніх фахівців. Пізнаючи унікальні закони духовного світу в процесі взаємодії із середовищем, особистість здійснює вибір шляхів свого розвитку.

Феноменолого-герменевтичний підхід орієнтований на встановлення особистісних смислів у процесі інтерпретації не тільки музичних творів, а й категорій художньої культури як єдиного духовного простору. Якщо феноменологія розкриває смисл і метод розуміння, то герменевтика ж тлумачить, яким чином має відбуватися розуміння. Методом тлумачення смислів феноменів, що досліджуються, й стала *герменевтична феноменологія*, мета якої - створення фундаментального онтологічного вчення, обумовленого потребою у герменевтичному проясненні буття як можливості існування.

Фрактально-резонансний [4] відображає основні положення порівняно нового концепту у педагогічній науці – фрактальної педагогіки, завданнями якої є: облік та виявлення біо- психо- соціо- культурно-екзистенціальної природи людини з притаманними їй системними якостями, такими як багатовимірність, багаторівневість, ієрархічність, полідетермінованість; створення умов для розвитку навичок самоконтролю та самоорганізації студентів на основі різних рівнів пізнання: формування кластерних груп студентів на основі діагностики їх особистісних характеристик, розробка варіативних освітніх програм з урахуванням особливостей кластерних груп; здійснення вибору і проведення апробації освітніх технологій, адекватних імманентним характеристикам учасників освітнього процесу; розробка нових освітніх технологій, що передбачають реалізацію синтонічної моделі взаємодії (від *syntony* - співзвучність з оточенням), яка ґрунтується на ідеї про те, що кожна людина має свій спосіб репрезентації, взаємодії зі світом і розглядає спілкування як результат складної взаємодії процесів сприйняття і мислення.

Ми погоджуємось з думкою авторів [4], що постнекласична освітня парадигма зорієнтована на зміну університетського освітнього простору з метою відтворення екзистенціональної цілісності природного, соціального та інших світів людини; можливість дискурсивного осмислення дійсності з різних світоглядних позицій; усвідомлення еволюційності, оновлення світу як стимулу до оновлення знань та переосмислення дійсності тощо.

Характерними рисами постнекласичного університетського простору в системі професійної мистецької освіти, на думку О. Олексюк [5] є цілісність, що відображає внутрішню єдність життєвого простору і духовного світу людини. Онтологічною основою цілісності постнекласичного університетського простору є суб'єктність, завдяки якій відбувається встановлення конструктивного зв'язку

людини з буттям; культуровідповідність – передбачає побудову постнекласичного університетського простору відповідно до моделі культури з урахуванням її багат шаровості, внутрішньої неоднозначності, з опорою на сучасні соціокультурні процеси; єдність інтеграції і диференціації – виражає взаємодію різних субпросторів і забезпечує автономне існування частин у межах цілого; взаємозв'язок рівнів включення студентів вищих мистецьких навчальних закладів у культуру (ментальний, субкультурний і транссубкультурний); джерела розвитку духовного потенціалу студентів (самопізнання, самовдосконалення, самоактуалізація); міждисциплінарний синтез у змісті професійної мистецької освіти; органічне включення освітнього процесу вищого мистецького навчального закладу у всі види життєдіяльності його суб'єктів. Таким чином, цілісний розвиток особистості музиканта-педагога в постнекласичному університетському просторі визначає міру духовності, гуманітарності і творчої буттєвості освіти.

Використання вище згаданого нами принципу фрактальної гармонії у духовному саморозвитку музиканта-педагога в умовах постнекласичного університетського простору має особливе значення для системи мистецької освіти, оскільки мистецтво, зокрема музичне мистецтво, володіє могутнім потенціалом щодо цілісного розвитку особистості студента, гармонізації його духовної та фізичної природи, духовного розвитку та саморозвитку. Музичне мистецтво, яке досягло трансцедентального смислу (вихід за межі духовного), наближує нас до Краси, яка поєднується не тільки з Благом, але й з Істиною. У такому випадку, музика усвідомлюється як вища духовна потенція, яка збагачує особистість музиканта-педагога такими якостями як: стан «натхнення»; братерство з усім людством; розширення розуміння поняття про справедливість, любов, віру та надію; впевненість у безсмерті, істинності буття, тобто гармонізує, поєднує в ціле духовні сутнісні сили людини [6]. Такий стан досягається, зокрема, коли майбутній музикант-педагог віддається процесу музикування, виконання твору композитора, що підносить виконавця та слухача над реальністю та духовним досвідом. Таким чином, саме принцип фрактальної гармонії особистості відтворює потенціал музичного мистецтва в аспекті цілісного духовного розвитку та саморозвитку музиканта-педагога.

Варто зазначити, що духовний саморозвиток особистості за концепцією О. Колісника [7] розглядається, як узгоджена і складно вибудована цілісність. Він відбувається у напрямку до переживання цілісності на кожному ступені розвитку

і залежить від того, як вона розв'язує презентовану провідним сенсом ієрархії смислів життєву мету, результат реалізації якої випробовує як ієрархію смислів. Духовний саморозвиток особистості, на думку автора, відбувається шляхом ступеневої зміни смислових полів у напрямку до трансперсонального ступеня духовного потоку психіки.

Таким чином, духовний саморозвиток особистості можливий за умови досягнення нею цілісності. Саме принцип фрактальної гармонії в духовному саморозвитку музиканта-педагога орієнтує на досягнення ним цілісності духовних сутнісних сил та веде до усвідомлення дійсної природи буття. Цілісність особистості у духовному саморозвитку досягається через гармонічний розвиток лівопівкульної та правопівкульної здатностей музиканта-педагога, зокрема шляхом інтеріоризації загальнолюдських цінностей у внутрішні смисли особистості та активації її ресурсів у змінених станах психіки через тілесно-м'язову релаксацію та медитацію.

Реалізація принципу фрактальної гармонії в духовному саморозвитку музиканта-педагога передбачає необхідність розробки поетапної методики діагностування та формування цілісності особистості музиканта-педагога з подальшим її впровадженням в освітній процес.

Обсяг цієї статті не дає змоги описати результати педагогічної діагностики рівнів сформованості досліджуваного феномену. Тому зупинимось на характеристиці етапів упровадження методики. На *першому етапі* майбутній музикант-педагог повинен оволодіти технікою тілесно-м'язової релаксації, яка допомагає активізувати підсвідомість, "розчутити" інтуїтивні відповіді, водночас досягти психологічної та тілесної розкритості, підвищити функціональну активність усіх органів чуття тощо. Для цього, на думку Е. Князевої та С. Курдюмова [8], потрібно досягти стану тілесного розкріпачення за допомогою техніки релаксації для досягнення особливого енергетичного стану, інакше кажучи, натхнення. Як правило, застосовуються такі методи тілесно орієнтованої терапії, як дихальні техніки і техніки релаксації у поєднанні.

Запропонований нами тренінг містить комплекс тілесно орієнтованих вправ, що розвивають рефлексивні навички: самоаналіз, самооцінка, самоконтроль. Ці навички є невід'ємними для усвідомлення майбутніми музикантами-педагогами своєї суб'єктності, розуміння своїх дій та поведінки на свідомому та несвідомому (інтуїтивному) рівнях, управління собою та своїм тілом.

Самооцінка та самоконтроль над власними, притаманними тільки даній особистості емоціями, переживаннями, тілесними реакціями допомагають усвідомити власну унікальність та співвіднести свою самооцінку з оцінкою оточуючих.

Для активізації фрактальних процесів в осягненні смислу музичного тексту можна використовувати метод музичного руху. Його сутність полягає в організації цілісного сприйняття музики, цілісного руху та формування здатності до творчого створення музично-рухового образу (виразної форми руху, яка втілює музичний зміст). Активізація фрактальних процесів досягається за рахунок так званого інтуїтивного сприйняття музики та безпосереднього прояву його у рухах. Подальші пошуки музично-рухового образу здійснюються послідовно через аналіз, осмислення й творчу переробку безпосереднього рухового відгуку.

На *другому етапі* запропонованої методики доцільно використовувати методи дивінаційної техніки. Ці методи вивчаються на семінарських та практичних заняттях навчальної дисципліни "Музична педагогіка" у змістовому модулі II, тема "Методи та прийоми музичного навчання та виховання". Дивінація (від лат. *divination* – передчуваю, передбачаю) – метод, спрямований на вияв творчої інтуїції, уживання в психологію іншого "Я". Основу дивінаційного методу складає інтуїція як спосіб бачення, відображення та осягнення істини. Цей метод застосовується при ознайомленні з новим музичним твором, активізує художньо-пізнавальну діяльність та процеси сприйняття, учування, інтонування та розпізнавання художнього образу й музично-виразних засобів його втілення. При використанні дивінаційного методу створюється ситуація, в якій студенти спонукаються до художньо-музичного самовираження і творчого пошуку на інтуїтивному рівні. Цим вони виявляють власне унікальне ставлення до світу й усвідомлення себе в ньому, відчують неповторність набутих ними досвіду, істин, смислів, які відкриваються їм у творчому акті.

У вправах із застосуванням дивінаційної техніки переважають безсвідомі дії, які засновані на внутрішньому стимулюванні, відсутності аналізу ситуації, неусвідомленості можливих наслідків. Як відомо, музика викликає емоції, що виявляються у формі інтонування, дихання і руху як упізнавання сутності музичного тексту. Розуміючи музичну інтонацію як "осмислення звучання", Б. Асаф'єв [9] розрізняє п'ять видів музичних інтонацій: емоційно-експресивні, предметно-образотворчі, музично-жанрові, музично-стильові, музично-компо-

зиційні. Ми пропонуємо вправи, котрі включають різні види інтонування, що виступають як важливий методичний інструментарій та діалогічно взаємодіють із музичним текстом. Вправа 1. "Вокальне інтонування": осягнення звуковисотних особливостей музичного тексту. Вправа 2. "Інструментальне інтонування": усвідомлення просторової характеристики музичного руху. Вправа 3. "Пластично-рухове інтонування": розкриття просторово-часової характеристики музичного руху, інакше кажучи, аналізу-інтерпретації музики у русі.

Робота з музичним текстом за допомогою дивінаційного методу допускає неочікувані одкровення, здогадки, спонтанні реакції, неоднозначні рішення. Таким чином, дивінаційний метод актуалізує творчий пошук студента до оновлених смислів та ідей, усвідомлених і набутих ним раніше; підштовхує його до самостійної продуктивної діяльності та посилює духовно-смыслову інтуїцію, збагачуючи герменевтичний досвід особистості майбутнього вчителя музичного мистецтва.

На *третьому етапі* реалізації методики цілісності особистості музиканта-педагога, на нашу думку, варто використовувати комплекс медитативних вправ. Медитація означає найкоротший вихід із ментальних лабіринтів до осяяння. Наводимо приклади деяких вправ. Вправа. Мета: розвиток емпатії у стані релаксації. Завдання: зручно сісти, уявити "розслаблений" предмет (перестиглий фрукт, наприклад). Відчути себе цим предметом, "увійти в його внутрішній світ". Розповісти про почуття, переживання цього предмета в даний момент від його особи. Далі починає говорити наступний член групи, який може продовжити розповідь або розпочати нове перевтілення [10].

Для формування здатності входження психіки у "надстан" як вихід за межі її звичайного функціонування доцільно застосувати філософські аутотренінги В. Петрушина [11] з використанням музичних творів А. Моцарта, Г. Генделя, Й. Баха, Ф. Шопена, Ф. Мендельсона та ін.: "Внутрішній спокій", "Вихід за межі ситуації", "Світогляд, що зцілює".

Корисними будуть адаптовані вправи із психотренінгу М. Цзена та Ю. Пахомова [12]. Вправа 1 "Виконавець ХХІ ст." спрямована на ідентифікацію себе з видатним виконавцем (наприклад, Е. Гігельс, В. Горовиць, С. Ріхтер та ін.) і передбачає опис своїх переживань у стані перевтілення. Вправа 2 "Візит до Морфея" допомагає увійти у стан "спати не засинаючи" на тлі обраної метроритмічної пульсації (наприклад: ритмічна схема із "Болеро" М. Равеля). Вправа 3

"Слово" – у ході виконання цієї вправи потрібно зосередитися на значенні певного слова (наприклад: "мелодія") і прослідкувати його передіснування у глибинах свідомості задовго до того, як воно набуде завершеної форми. Позитивним результатом буде відкриття нових значень цього слова. У вправі 4 "Задзеркалля" учасникам пропонується протягом 10–15 хв. споглядати картину, проникнутися її настроєм, уявити імпульс, що став першоджерелом твору, та дібрати до неї музичний супровід у вигляді тези-антитези (близький та протилежний за характером).

Поетапна методика формування цілісності особистості музиканта-педагога містить також *заняття-есе* – невеликі музичні нариси, які не потребують аналізу музики, відтворення творчого шляху композитора, активізації музичного мислення. Навпаки, щоб досягти навчальної вершини створення Краси, стану катарсису під час спілкування з музикою, доцільно, на наш погляд, розпочинати з організації колективної "творчої бездумності". Можливо, це і є найвищий рівень поєднання Істини – Добра – Краси, виражений через безпосередність та відкритість духовних почуттів.

Ефективними будуть прийоми, спрямовані на поглиблення інтуїції (прийоми онтопсихологічної музикотерапії, колективне обговорення проєктивних малюнків, танцювальна терапія тощо).

Узагальнюючи результати теоретичного аналізу, діагностики та першого етапу методики формування окресленого феномену, ми дійшли таких висновків:

– актуалізація принципу фрактальної гармонії в духовному саморозвитку музиканта-педагога в умовах постнекласичного університетського простору сприяє спрямуванню цілей освіти на внутрішній світ людини, її цінності та смислоттєві орієнтації, її існування, цілісне здоров'я;

– розробка та впровадження в освітній процес Інституту мистецтв Київського університету імені Бориса Грінченка поетапної методики формування цілісності особистості музиканта-педагога через комплекс спеціально підібраних та адаптованих тренінгових вправ та різноманітних технік на основі принципу фрактальної особистості спонукають студентів до самопізнання, рефлексії, усвідомлення власної цілісності, унікальності та неповторності.

Наступні дослідження будуть присвячені аналізу результатів експериментального дослідження формування цілісності особистості музиканта-педагога в постнекласичному університетському просторі.

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Phonetic stylistic peculiarities of political German Twitter communication

Abstract: The article is devoted to the investigation of linguistic means functioning in political German Twitter communication. The significant characteristics of Twitter communication are analyzed. Twitter represents a hybrid form of online communication that combines the characteristics of several internet services: instant messaging app, blog, e-mail and social network. The conciseness of texts is the characteristic feature of Twitter: the number of signs is limited (Twitter messages are restricted to 140 signs), it makes the author to concentrate on the most important aspects of his message and influences linguistic-stylistic features of communication, subjecting the utterance to the principles of economy. This principle is realized in particular through numerous phenomena of phonetic reduction; to the analysis of functioning of the latter in political tweets special attention is given in this article. Among the phenomena of phonetic reduction, prevail enclisis, clitization, apheresis, syncope, and apocope. The representation of the mentioned phonetic reduction types in political Twitter communication was checked with the help of three relative corpora of the years 2013-2015. The article provides quantitative results of a corpus investigation and numerous examples of these phenomena used within the investigated corpora. Generally, it was concluded that stylistic elements of colloquial language are used in political German Twitter communication but the frequency of the usage of such forms differs even within separate types of phonetic reduction. The political topic does not prevent from the use of informal linguistic forms in Twitter communication. Realized in Twitter texts of investigated corpus phonetic reduction represents the transformation trends of linguistic units' graphic form in the modern German language.

Keywords: Twitter communication, political German Twitter communication, text of German Twitter message, phonetic stylistic peculiarities, phonetic reduction.

Introduction. The current media are the existential component of the informative society and they are used for orientation in the globalized world. Within the current system of electronic communication, the social media gained a great popularity that is determined by the active development of information technologies and the vital society's need for communication. The linguistic investigation of new types of media remains a live issue today as they influence the human's knowledge, believes and actions [7, p. 206].

Social media that includes blogs (microblogs), content-classes, social networks, forums etc. create new communication forms in the sphere of public authority [5]. Traditional mass media work mainly in the form of information monolog (one-way communication) due to which the relevant structures influence the thinking and maintain control over dependent subjects. Internet can provide a constant social-political dispute with the possibility of an electronic real-time feedback between authorities and citizens and creates the real opportunity to overcome hierarchical power structures [6, p. 238].

Internet allows lifting geographical and structural restrictions of direct political participation, collective action and removes the distance between citizens and persons empowered to make decisions, expands the horizons of a civic culture. Furthermore the internet raises public knowledge and the awareness about government's activity, substantially increases the opportunities of political communication, creating the background for the increase in public awareness. Political campaigns in the Internet take place during election campaigns and have a number of advantages over other types of political communications. They are primarily connected with the possibility of an interactive communication, electorate, political activists, mass media and other target audiences [6, p. 223-235].

With the spread of social media the role of Twitter's microblogs service substantially increased, at the moment is the biggest social network that enables message transmitting to a wide audience under the condition of space and time distance between the partners of communication [9]. Twitter enables their users to publish information, document seemingly mundane aspects of their lives, interact online with friends, family, and strangers, and perform daily tasks with greater ease.

Twitter not only complements the daily lives of their users, they also change political participation, campaigning, and activism [10, p. 11]. Twitter is not the traditional blog as it is, but the means of on-line communication, a hybrid form combining the characteristics of several internet-services: instant messaging app, blog, e-mail and social network [2, p. 212].

The microblogging service Twitter is one of the most popular tools and one of those most open to researchers [10, p. 11]. It was not until fairly recently that, Twitter communication, as a form of electronic communication, became the object of linguistic investigations. Twitter communication became the sphere of research of such Ukrainian and foreign scientists as D. Crystal, M. Dang-Anh, J. Einspänner, S. Fessler, E. Goroshko, C. Herring, T. L. Polyakova, N. Proferes, C. Thimm, M. Zimmer and others.

The **purpose** of the investigation is to establish the specific character of the use of linguistic forms and means in political German Twitter communication since Twitter turned into a channel of instant dissemination of information on the events of social-political life of the country as well as within the journalists' environments [4]. The realization of the mentioned purposes presupposes completing the following **task**: to define phonetic stylistic peculiarities of political German Twitter communication structure. The task is realized through the **method** of corpus investigation: the trends, characteristic for electronic German Twitter communication were checked with the help of three corpora of political German Twitter messages: Twitter-Korpus Bundestag, 2013 that involves 307 076 texts and 6 688 30 words, Twitter Pegida Korpus A (January, 2015) with 4 614 texts and 104 212 words respectively, and also Twitter Pegida Korpus B (December, 2014) with 24 610 texts and 543 472 words respectively. Therefore, the total number of tweets serving the **material** of this investigation makes 336 300 texts with the total number of 316 514 words. The mentioned corpora were processed on the on-line platform CQPweb with the help of platform tools. From the data mentioned above about the corpora volumes is evident that the corpus "Twitter-Korpus Bundestag" contains the biggest number of texts and the representativeness figures of the investigated forms in this corpus are the highest relatively.

Discussion. Founded in 2006 the Twitter network proved to be a dynamic and effective form of electronic communication. According to statistical data, the number of active Twitter users in 2017 was 319 million [11]. Twitter is a communicative space

where communication takes place in the form of messages – tweets – that represent specific records of the everyday life of its participants. Twitter in itself is a subject to the first aim of communication and exchange of private and official information between its users.

Twitter became an integral feature of information activity of famous politicians, columnists and leading mass media [4, p. 176-177]. Cultural, political and civil leaders are active Twitter users. In their accounts they create messages – tweets, place photos, audio and video, communicate with other users – so called followers, one of such is Julia Klöckner, a German politician and member of the party of Christian Democratic Union (CDU) of Germany, that is represented by 47 thousands of followers on Twitter:

Julia Klöckner @JuliaKloeckner

Zurück in der Heimat #RLP Danke an die wunderbaren Mitarbeiter der @KASonline #Niger #Mali #Berlin

Tweets by Julia Klöckner who has been registered in Twitter network since 2009 are connected with her professional activity – she informs and reports about meetings, sessions and public speaking where she is a participant, work trips, covers current political events in Germany and abroad, posts tweets of her political party and other political leaders and journalists. Twitter allows their numerous media users to construct a personal space of social interaction, to increase social importance and social-psychological influence on a wide audience. The option to give comments on the tweet's information of public people and express own opinions by followers on the given topic provides the feedback of Twitter communication. The success of Twitter's microblogs is determined by two factors. Firstly, in Twitter unlike other social networks one can follow any user's timeline in a one-way fashion, without his consent. Thus, the distance between the author of information and readership reduces significantly and there is no longer any necessity in the intermediaries between them. Secondly, internet users give the preference to Twitter due to conciseness of their texts. The amount of information up to 140 signs makes the author "to concentrate on the most important things." The short form of Twitter messages contributes to their frequent appearance on the Internet; therefore, today's world network of microblogs became the source of the most up-to-date information [4, p. 177].

With its limit of 140 characters, Twitter offered its users a highly restrictive communication environment. Users started to experiment by using emerging cultural conventions to extend uses of the service by sidestepping this limitation [10, p. 13]. Personal interaction in the electronic-written space of German Twitter communication reveals the features of colloquialism, created by the number of certain phonetic, syntactic and lexical peculiarities of Twitter messages. Different phonetic orthographic or phonetic spelling deviations from the German language norms, such as phonetic reduction, approximate the text of German Twitter message to the oral colloquial language on the phonetic level.

In the electronic Twitter communication, the economy principle is communicatively justified but is based not only on the desire of the speakers to transmit the greatest amount of information at minimum language expense [1]. Phonetic reduction is the central style forming characteristic of German Twitter communication. On the phonetic level, reduction updates **enclisis** (Enklise) that means the shifting of stress to a preceding word [8, p. 192]. Enclisis causes cliticization of the personal pronoun of the second person singular *du*, that leads to softening of the enclitic 'u' to 'e' and functioning of such forms of verb as *biste – bist du, haste – hast du, kommste – kommst du, machste – machst du, kannste – kannst du* (see Table 1). For example:

Biste bescheuert, d war gestern. Son Typ gewann! (Twitter-Korpus Bundestag)

Erst **biste** schlechtesten Tag der Woche, dann kommt noch #Pegida an und versaut deinen Ruf so richtig. (Twitter Pegida Korpus B)

Machste den Fernseher an schon kommt dieser Werbespot zur Wahl von der CDU mit Merkel: (((Deutschland , bitte wach endlich auf aus dem Dornröschenschlaf (Twitter-Korpus Bundestag)

Grüne **kannste** abschminken. (Twitter-Korpus Bundestag)

Verb forms like *biste, machste, kannste* in the texts mentioned above illustrate typical to the spoken language adhesion of the verbs *sein, machen, können* in the second person singular with the personal pronoun *du*.

Enclisis	Bundestag	Pegida A	Pegida B
biste	8	–	3

haste	49	2	3
kommste	2	–	–
machste	2	–	–
kannste	61	1	5

Table 1: Enclisis in political German Twitter corpora

The clitization of the expletive pronoun *es* that collocates with the verbs of the first and the third person singular, the first person plural of the present tense, indicative, conditional and imperative moods as well as the clitization of the expletive pronoun *es* that collocates with personal pronoun are widespread types of enclisis in political German Twitter communication (see Table 2). For example: *aba bitte gaga machs nich wie merkel ;)* (Twitter-Korpus Bundestag)

The clitization of prepositions and articles must be separately noted, as, for example: Deutschland gibt soviel Toleranz ab, dass nichts mehr **fürs** eigene Volk übrig bleibt. (Twitter Pegida Korpus A)

Clitization	Bundestag	Pegida A	Pegida B
wärs	52	–	6
dus	2	–	–
mitm	4	–	–
fürs	208	3	21
vorm	89	–	13
hinterm	18	–	–

Table 2: Clitization in political German Twitter corpora

As it can be seen from the Table 2, the most frequent is the clitization of the preposition *für* and the expletive pronoun *es* – *fürs*.

In political German Twitter communication the reduction is intensively revealed by means of **phonetic deviations: apheresis, syncope and apocope**. The

apheresis as a major form of phonetic deviations and phonetic stylistic means of electronic communication is the loss of the vowel or the whole syllable at the beginning of the word that is realized by means of clipping of the first syllable of the indefinite article *ein* (see Table 3). As in the example of initially clipped indefinite article, masculine, accusative case *nen*: *Dieser Steinbrück würde **nen** ganz Galanten Kanzler abgeben.* (Twitter-Korpus Bundestag)

In the texts of investigated corpora tweets the forms of adverbial participles were revealed, simplified on the principle of initial clipping.

The realization of initial clipping while using the verbs and adverbs with prefix *her* was also frequent (see Table 3). For example:

Müsste nochmal **reinhören**, vielleicht Merkel die nicht auf die Fragen der Moderatoren eingehen will. (Twitter-Korpus Bundestag)

„Gott sei Dank ist der Richter nicht darauf **reingefallen**“, dass Mord aus Ehre zu rechtfertigen ist, häh (Twitter Pegida Korpus A)

Ich würde in Dresden nicht mehr ohne Messer **rausgehen**. (Twitter Pegida Korpus B)

The quantitative data of the using of several major types of apheresis in the investigated corpora are represented as follows:

Apheresis	Bundestag	Pegida A	Pegida B
nen	237	3	14
reinge-	152	2	6
rausge-	241	1	5

Table 3: Apheresis in political German Twitter corpora

The next kind of phonetic deviations is a **syncope**, which means the loss of the vowel or the syllable in the middle of the word and is realized by means of the middle clipping of pronominal adverbs. For example, tweets, where the so-called **a-syncope** of the pronominal adverb occurs *darauf* – *drauf* (see Table 4):

Rot-Rot-Grün, wäre ich nicht **drauf** gekommen. (Twitter-Korpus Bundestag)

Zusammenfassend kann man sagen, dass #Pegida das Ergebnis von abgebauten sozialen Netzen ist. Da haut man auf die Schwächsten **drauf**. (Twitter Pegida Korpus B)

The middle clipping of the adverb *gerade* is also a widely occurring type of syncope with the so-called **e-syncope** – *grade* (see Table 4):

Indirekt zugeben, dass unsere Mails gelesen werden, ist nicht **grade** positiv. (Twitter-Korpus Bundestag)

Während **grade** Tausende für ein weltoffenes Dresden auf die Straße gehen plaudert IM Ulbig mit Oertel über Dialog. (Twitter Pegida Korpus A)

However, the most common is the form of the adverb *gerade* – *grad*, which is formed by means of syncope and apocope combination (see Table 4). For example:

#Chefin war super **grad** im #Bundestag. (Twitter-Korpus Bundestag)

Grad sind knapp 30 Dortmunder in den Bahnhof gelassen worden (Twitter Pegida Korpus A)

Wäre nicht erstaunt wenn #Pegida Honks erklären, es sei **grad** so warm , weil die Moslems ihr Wetter hier einschleppen ... (Twitter Pegida Korpus A)

Syncope	Bundestag	Pegida A	Pegida B
drauf	198	2	8
grade	89	2	14
grad	185	1	22

Table 4: Common syncope forms in political German Twitter corpora

The following tweets demonstrate the middle clipping of the verb – the infinitive of the verb *sehen* with the vowel root final sound that represents **e-syncope**:

#TVDuell auf 4 Sendern ? Damit die Ostzone das **sehn** kann ? Wir hatten ja eh nur ARD. (Twitter-Korpus Bundestag)

So kann mans auch **sehn** in zahlen : 1150 wurden befragt , 400 gaben antwort. (Twitter Pegida Korpus B)

This phenomenon appeared to be the most common in the corpus of Federal government tweets.

The **apocope** as the most widespread kind of phonetic deviations and phonetic stylistic means in German Twitter communication means the loss of unstressed vowel 'e' or the syllable at the end of the word (**e-Schwa**) and is realized by means of clipping the final part of the verbs' stem. For example:

Ach, ich **mach** das anders : Man muss ganz viele tolle #hashtags benutzen (Twitter-Korpus Bundestag)

Orrr, ich **komm** einfach nicht über die Widerlichkeit dieses schwarz-rot-goldenen, beleuchteten #Pegida-Kreuzes weg. (Twitter Pegida Korpus B)

It should be particularly emphasized that, for the current spoken language the principle of **e-apocope** is characteristic not only at conjugation of first person singular, present tense, indicative verbs but at conjugation of the first and third person singular, present tense, conditional mood verbs. For example:

1 Stimme an Spd und die andere an meinen Lokalpiraten **wär** ne idee. (Twitter-Korpus Bundestag)

Und Sie, Herr Steinbrück? **Fänd** ich nicht in Ordnung. (Twitter-Korpus Bundestag)

Pegida-Ordner: "Ich schlag keine Frauen - für dich **würd** ich 'ne Ausnahme machen. (Twitter Pegida Korpus B)

At conjugation of the verbs *sein*, *finden* and *werden*, unstressed 'e' of the last syllable is lost: *wär* instead of *wäre*, *fänd ich* instead of *fände ich* and *würd ich* instead of *würde ich*.

In the tweet texts, the common kind of apocope is the **t-apocope** – final clipping of the verb *sein* in the third person singular, present tense, indicative mood. For example: #FroehlicheWeihnachten #nopegida So, Baum **is** fertig. (Twitter Pegida Korpus B)

As a separate group, the cases of final clipping of different parts of speech are distinguished: subordinate conjunction *dass*, negative particle *nicht*, adverbs *heute* and *jetzt*, coordinate conjunction *und* and other cases. For example:

@EtienneToGo stell dir vor Merkel würde sich daran erinnern das sie Chef von DE ist und **nich** nur von der EU o. O (Twitter-Korpus Bundestag)

#Pegida-Anhänger verteidigen religiöse Werte, an die sie selbst **nich** (Twitter Pegida Korpus A)

Gibt zwar kein Schnee hier, aber wir wollen ja **nich**, dass es bald aussieht wie in der Arktis #schneegida (Twitter Pegida Korpus B)

#Seehofer : Mia ham **jetz** a Umfrage gmacht (Twitter-Korpus Bundestag)

The given tweet texts demonstrate the cases of final clipping realization of the negative particle *nicht* to *nich* and the adverb *jetzt* to *jetz*.

Conclusions. The new media represents the change of the quality of the mass communication system and the communicative system in general. Social media provides the users with wide opportunities of effective mass communication that determines their prevailing position in the functioning of the modern society. The gradual digitalization of society contributes to the developing of social relations in the space of electronic communication. The microblogging service Twitter turned into a powerful tool of sociopolitical communication. Political leaders and political parties make active use of the Twitter network with a view of increasing their public significance and their influence on general public.

Communication in the electronic-written space of Twitter communication is distinguished by the high level of colloquialism that determines the transference of phonetic stylistic means to the texts of German Twitter communication. In political German Twitter communication different kinds of phonetic reduction are represented, that is realized by means of enclisis and phonetic deviation (apheresis, syncope, apocope), that are subjected to the compression of the form of expression. These kinds of phonetic reduction are used in political texts to various frequency extent. The frequency can vary substantially for certain word forms even within one type of reduction. Summarizing the results obtained it can be said that political German Twitter communication makes active use of the means of stylization of spoken colloquial language in written. The political topic itself does not pose the obstacle to the use of informal language forms. The phonetic reduction that is realized in the tweet texts of investigated corpora reflects the trends of transformation of linguistic units' graphic form in the modern German language.

The detailed lexical stylistic and syntactical description of the corpora of political Twitter communication, created personally by means of special tools [3] could become the subject of further investigations.

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***Application of special sanctions to Ukrainian subjects
of foreign economic activity and foreign business subjects:
problems and improvements***

Abstract: The article is devoted to the research of number of problems related to the special sanctions application to Ukrainian subjects of foreign economic activity and foreign business entities. It is determined that white spots in the legislation of Ukraine cause certain conflicts in practice regarding application of special sanctions in the field of foreign economic activity, cause opacity and make it unsystematic.

Keywords: foreign economic activity, special sanctions, fine, individual licensing regime, temporary suspension of foreign economic activity.

The outdated norms in the field of foreign economic activity generate corruption. The application of special sanctions in Ukraine is regulated by the Law of Ukraine "On Foreign Economical Activity" adopted by the Verkhovna Rada of Ukraine in the early 1990's, which has undergone many changes and additions and is not in line with international practice and EU legislation. In particular, the current Law of Ukraine "On Foreign Economical Activity" is interconnected with 612 normative legal acts regulating various spheres. The law is obsolete and does not comply with international experience and EU legislation [1, p. 8].

In this article, while investigating the issues of foreign economic activity in Ukraine, we consider it worthwhile to pay attention to the fact that Ukrainian state regulation of foreign economic activity contains shortcomings that also appear in other current legislation of Ukraine, in particular: instability and internal contradictions of norms; lack of consistency between laws and acts; lack of implementation mechanism.

It is impossible not to pay attention to the fact that Ukrainian legislation does not make any official procedures for sending a foreign or Ukrainian company to apply special sanctions. As a rule, companies will only know about the sanctions imposed

after they have already been applied. The only way to know in advance whether sanctions will be applied is to constantly monitor the official database of the ministry [1, p. 18]. Consequently, there are discussions about the need to abolish this law or a substantial revision of its parts.

T.V. Fylypenko, A.S. Fylypenko concluded that unjustified, without taking into account all negative consequences, the application of special sanctions can cause significant damage to the subject of foreign economic activity. Therefore, further research is needed for a comprehensive assessment of the impact of such measures on subjects of foreign economic activity and their effectiveness in the fight against offenses in the field of foreign economic activity [2, p. 209].

Article 37 of the Law of Ukraine "On Foreign Economic Activity" [3] provides for the application of special sanctions for violation of this Law, as well as related laws of Ukraine with regard to subjects of foreign economic activity or foreign business entities: 1) imposition of fines in cases of untimely execution or non-fulfillment by the subjects of foreign economic activity and foreign business entities of their duties in accordance with this or related laws of Ukraine; 2) application to subjects of foreign economic activity and foreign subjects of economic activity to the individual licensing regime in cases of violation by such subjects of this Law and (or) related laws of Ukraine that impose certain prohibitions, restrictions or procedures for the implementation of foreign economic operations; 3) temporary suspension of foreign economic activity in cases of violation of this Law or related laws of Ukraine, execution of actions that may harm the interests of national economic security.

N. Kantor notes that one can not ignore the inaccurate language of the provisions of the article: for example, the extension of the temporary suspension of foreign economic activity is carried out solely by a court decision. When deciding on the extension of the temporary suspension of foreign economic activity, the court shall specify the term for which the validity of this sanction was extended [4, p. 89]. But, according to Part 2 of Art. 251 of the Civil Code of Ukraine, the term is a certain moment in time, the occurrence of which is associated with an action or event that is of legal significance and is determined by the calendar date or an indication of an event that would inevitably occur [5]. Therefore, according to the scholar, Art. 37 of the Law of Ukraine "On Foreign Economic Activity" requires changes, since the sanction of a temporary nature may only be prolonged for a certain period from the expiry of which sanctions will be lifted, rather than for a term. However, administrative

courts interpret this article rather expanded and often continue to act temporary suspension of foreign economic activity before a certain event, which may not occur (for example, to return the proceeds in foreign currency, etc.) [4, p. 89].

It should be noted that the current legislation of Ukraine broadly defines the list of violations for which special sanctions may be applied, namely: for violation of the Law on foreign economic activity and related laws, in particular, in case of violation of currency, customs, tax, other legislation. Which establishes any prohibitions, restrictions or procedures for the implementation of FEA operations, as well as in the case of actions that may harm the interests of national economic security.

S.I. Yushyna highlights the following signs of special sanctions, which are applied by: - Ministry of Economy of Ukraine (authorized government body); - to subjects of foreign economic activity (subject of economic activity); - for violation of the Law of Ukraine "On Foreign Economic Activity" and related laws of Ukraine; - for the period up to the adoption by the subjects of foreign economic activity of practical measures to eliminate the violation of the current legislation in the field of foreign economic relations and bringing the foreign economic activity in line with the norms of the current legislative and normative acts of Ukraine (that is, in order to terminate the offense of the subject of economic activity and to eliminate its consequences in a certain sphere) [6, p. 203].

An important fact is that, in practice, fines, as types of special sanctions, are not applied to the entities of foreign economic activity.

Accordingly, special sanction – an individual licensing regime or a temporary suspension of foreign economic activity – are applied by the Ministry of Economy and European Integration of Ukraine to entities of foreign economic activity by a decision of the judicial authorities of Ukraine or at the request of the bodies of the state fiscal service, control and audit service, law enforcement agencies, Bodies of the Antimonopoly Committee of Ukraine and the National Bank of Ukraine.

In particular, in the case of applying an individual licensing regime, a business entity must obtain an individual license for each individual foreign economic transaction. An individual licensing regime operates until the elimination of violations. Individual licensing regime of foreign economic activity – provides for the possibility of conducting foreign economic transactions in case of obtaining individual licenses for each transaction (the cost of the license – 0.2% of the transaction cost, terms of receipt – 15 working days).

Yu.M. Soloviova, O.I. Romaniuk came to the conclusion that "the individual licensing regime is used as a sanction, the punishment for violating the law only in foreign economic activity, in contrast to other types of economic activity, where licensing is a mean of state regulation and the basis for using its right to conduct business activities, and for violating the law quite different sanctions are applied" [7].

At the same time, a temporary suspension of foreign economic activity is a total ban on foreign economic transactions for a period of 3 months.

The analysis of the current legislation of Ukraine makes it possible to assert that at present there is no clear list of offenses in foreign economic activity, for which the sanction is applied – a temporary suspension of foreign economic activity. In addition, the temporary suspension of foreign economic activity as a sanction is not provided by the Commercial Code of Ukraine among other administrative and economic sanctions.

Therefore, a temporary suspension of foreign economic activity means deprivation of the right to engage in all types of foreign economic activity, with the exception of some exceptions. Exceptions are listed in Section 3.1. Provisions on the procedure for the application of the special sanctions provided for in art. 2, p. 2, to the subjects of foreign economic activity of Ukraine and foreign economic entities according to the article 37 of the Law on Foreign Economic Activity, approved by the order of the Ministry of Economy of Ukraine of April 17, 2000 № 52 [8]. It provides that the use of sanctions against the subject of foreign economic activity may precede the official warning by the Ministry of Economy and European Integration of Ukraine of the possibility of applying sanctions to them. But according to the text of the mentioned act, such a warning of the subject of foreign economic activity (resident) is not a duty, but a right of the state. The said Regulation does not stipulate the sequence of actions and the period during which the relevant authorities have the right to fulfill their duty to notify a particular subject about the imposition of sanctions.

Thus, Ukrainian subjects of foreign economic activity, to which a special sanction is applied in the established procedure – an individual licensing or temporary suspension of foreign economic activity, do not have the right to enter into agreements of commission, commissions, agents, on joint activity and cooperation, consignments, dealerships, distributions Leasing, hiring, leasing, storage and other agreements involving foreign economic transactions by other persons or in favor of other persons on behalf or in transit Property lease in time use for the purpose of

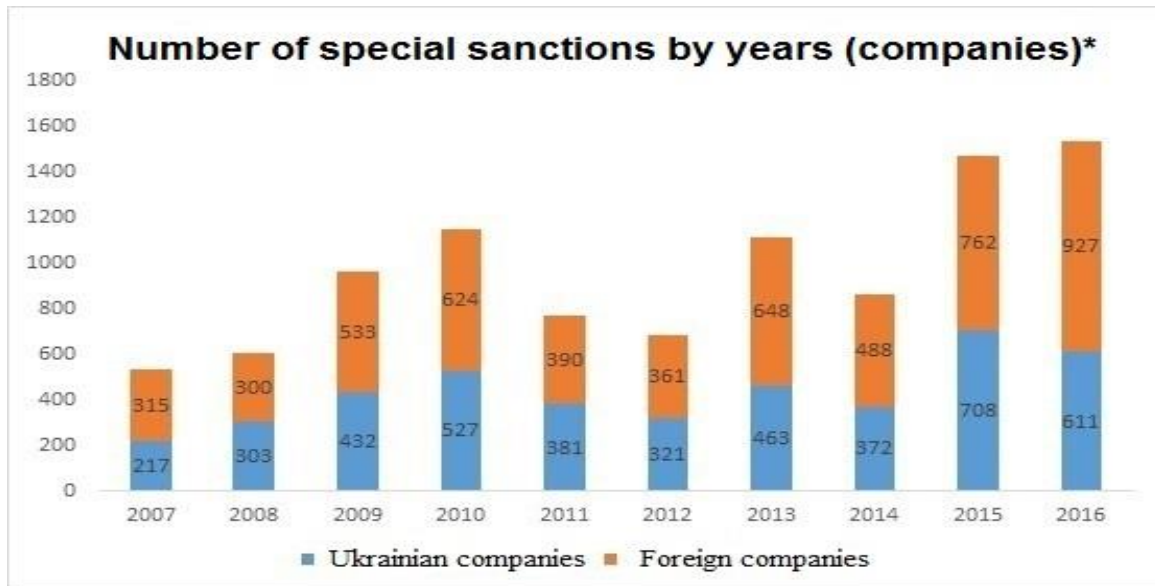
conducting foreign economic activity. This also applies to the conclusion by Ukrainian subjects of foreign economic activity of certain types of agreements with the relevant foreign business entities in Ukraine or goods of Ukrainian origin [9, p. 121].

Consequently, special sanctions – an individual licensing regime and a temporary suspension of foreign economic activity – imply a ban on all types of foreign economic activity, in particular: the import and export of goods, works and services, international settlements, joint ventures, property ownership, currency exchange operations, and so on. The difference between these two types of sanctions is that when applying an individual licensing regime, a company that has been sanctioned may still conduct an FEA operation if it receives a one-time (individual license).

A single (individual) license is the basis for the implementation of foreign economic transactions by subjects of foreign economic activity, which are subject to sanctions. One-time (individual) license is executed in the order determined by the Ministry of Economy and European Integration of Ukraine [9, p. 120].

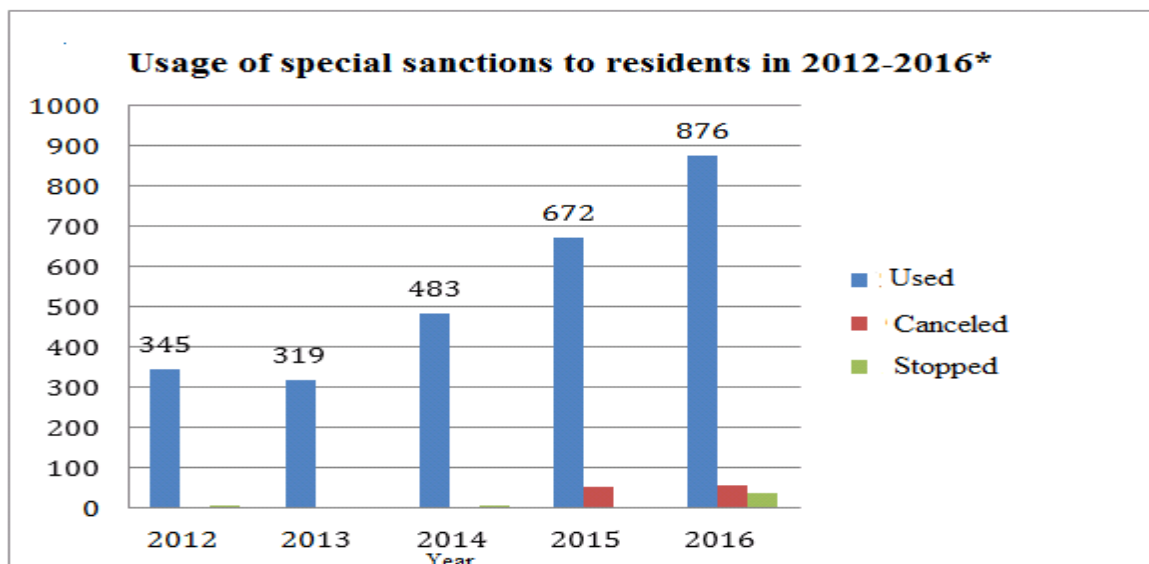
It should be noted that, despite the fact that there is a clear distinction between sanctions, at the same time, the legislation does not stipulate the severity of the violation, hence the extent of liability for violation of the relevant legislation. This allows the body submitting the application for special sanctions in each case to independently choose the severity of the violation and determine the special sanction based on their own beliefs. Consequently, the practice of applying special sanctions to Ukrainian entities of foreign economic activity and foreign business entities in some cases is characterized by inadequacy and inconsistency. In particular, in practice there were cases where the same violation in one case applied a temporary suspension of foreign economic activity, and in the other – an individual licensing regime. This effectively excludes any systematic and predictable application of special sanctions for the same violations.

The given statistics on the application of special sanctions is indicating a steady increase in the number of special sanctions applied, both for Ukrainian and foreign companies.

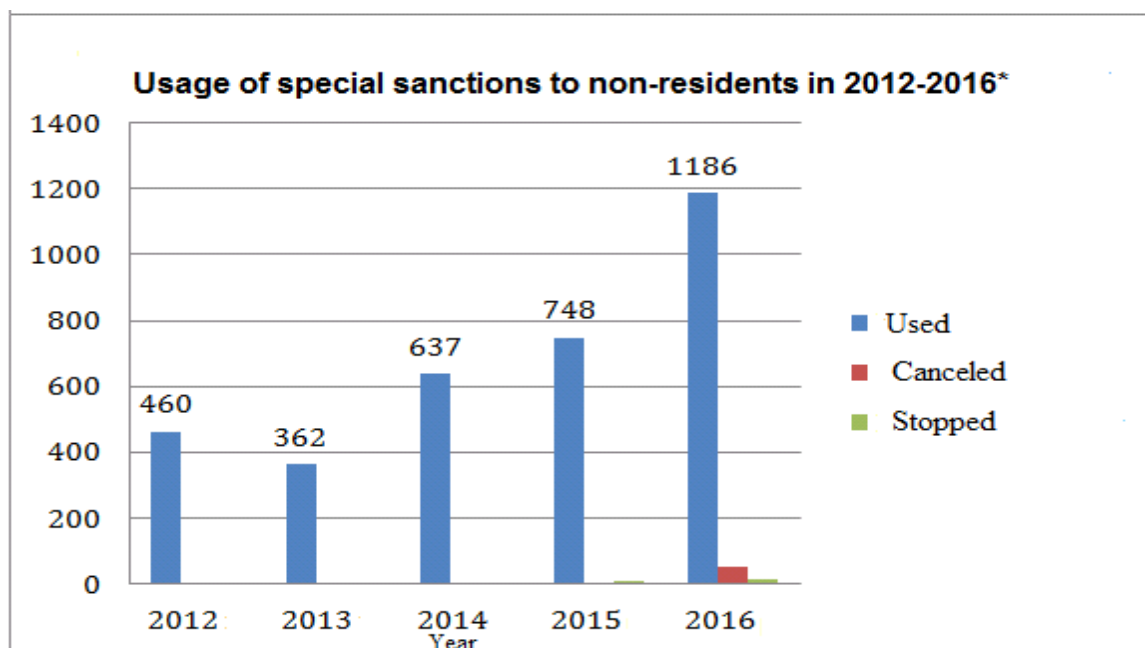


*data is taken from the web-resource: http://www.sk.ua/sites/default/files/yak_zastosovuyutsya_specialni_sankciyi_u_sferi_zed.pdf.

In particular, official data on the use of special sanctions shows a steady increase in their growth, and in 2016 there was a record increase of 45.3% compared to 2015 [10].



*data is taken from the web-resource: <http://www.interlegal.com.ua>.



*data is taken from the web-resource: <http://www.interlegal.com.ua>.

Yu.M. Soloviova, O.I. Romaniuk state that "the legal regulation of special sanctions application to foreign economic entities in Ukraine is an important basis for the formation of a common legal framework and uniform standards in the field of competition, state support for residents and foreign counterparties, and the achievement of legal European and world standards" [7].

T.V. Fylypenko, A.S. Fylypenko consider, that there should be clearly stated criteria analysis of offenses in foreign trade, found their causes and conditions in the current legislation of Ukraine. Only under the condition of such state regulation we can talk about the possibility of effective offenses prevention in the foreign economic sphere and a significant reduction of them, which, in fact, is the purpose of any sanctions as punishment. Therefore, it would be more expedient and legally balanced to establish a specific composition of offenses in the field of foreign economic activity [2, p. 208].

Thus, in order to improve the procedure for the application of special sanctions to Ukrainian entities of foreign economic activity and foreign economic entities, the following measures should be taken: to draft a bill on amending the Law of Ukraine "On Foreign Economic Activity" of April 16, 1991 and the relevant subordinate Acts to ensure a systematic and transparent application of special sanctions; to carry out an analysis of court decisions on the appeal of sanctions by the competent authorities for violations in the field of foreign economic activity in order: - to identify systemic

problems in the practice of applying such sanctions, decisions on which are subject to appeal; - to detect cases of unequal use of relevant provisions of the legislation in the field of foreign economic activity, customs, currency legislation by courts: - assessment of the effectiveness of court decisions enforcement adopted in favor of small and medium enterprises [11].

So, in the near future in Ukraine, it is necessary to abolish outdated norms in the field of foreign economic activity that give rise to corruption, and to introduce new, relevant international practices.

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Post-embryonic Changes in the Linear Dimensions of the Axial Skeleton of Crossbred Sheep

Abstract

When creating crossbred sheep breeding, a large number of breeds and pedigrees of stud rams and females were used, which then needed a complex evaluation of morpho-biological features. To investigate this issue, sheep lambs produced from crossing stud rams of Romney Marsh breed (RM x FC), North-Caucasian meat-wool breed (NC x FC) and Precoce (P x FC) with fine-wooled and coarse-wooled females at the Republican State Agricultural Enterprise "SANIBA" under conditions of the distant pasture and mountain husbandry of the North Caucasus, over the 2008 to 2016 period. Five rams from each group at the age of 4, 8, 13 and 18 months were butchered. The size of the skeleton sections is taken into account in these age categories. It was found that the growth rate of calvaria after birth is lower (growth rate 1.93) than in the spine (growth rate 2.49), as a result of this the relative length of the calvaria in comparison with the newborn decreased on average by 3.67%, and the spine, on the contrary, increased by same value. In the postembryonic period, the calvaria developed more intensively in length (growth ratio 1.930) than in the depth, and the width of angle in the jaw took the first place by the intensity of growth (growth ratio 3,327), then the height of the angle (2.439) and length (2.019). During 18 months of life of the experimental youngsters, the mass of the spine and its sections increased by an average of 8.22 - 9.20, and the increase of length was 2.32 - 2.69. In the embryonic period, the spine more intensively developed in length than in the mass, and the birth moment it was 37.1 - 43.1% of the length spine of 18 months age, but its mass was only 11.0 - 12.2. Crossbred youngsters had better developed thoracic bone than fine-wooled ones, which is typical for sheep of meat-wool breed.

Keywords: hybrids, crossbreeds, skeleton, calvarias, embryonic period, spine, postembryonic period.

Relevance

In Russia, due to severe natural and climatic conditions, sheep breeding has always been an important branch of agriculture, providing the needs of the population and light industry for food and specific types of animal raw materials. In some cases, sheep are the only species of animals that can use the available natural resources (Bagirov, 2012, 43).

In modern conditions, the development of sheep breeding, increasing its competitiveness is largely due, above all, to its meat production. Lamb meat is one of the most valuable types of meat products and enjoys high demand in the world market. The best is meat of lambs of 6-8 months age. In the world lamb consumption per capita is 1.29 kg, in Russia 1.0 kg (Karabaeva, 2016, 3).

In order to increase the efficiency and competitiveness of the industry, based on world experience, it is necessary to use meat productivity of sheep more fully, and for this it is necessary to have breeds and types with high early maturity and meat productivity. The most important method of increasing meat productivity is crossing (Gogaev, 2003, 9; Ismailov, 2003, 19, 35). In recent years, the development of early mature meat and meat-wool sheep breeding has become increasingly important (Gogayev, 2003, 28; Kesaev, 2013, 53, 68). In the same direction, work is being done in the North Caucasus (Gogayev 2003; Gogayev 2012; Kesaev, 2016, 55; Gogaev, 2016, 68). When creating crossbred sheep breeding, a significant number of breeds and breed groups of stud rams and females were used, whose offspring also needed a comprehensive assessment of productivity and morpho-biological features.

Particularly, it is poorly known about the formation of the bone system during the postembryonic period of life. The bone system is the supporting skeleton of the body. The skeleton determines the size and shape of the body. The bony system performs important functions in the body: mechanical and biological. The first include the functions of support and movement of the body, in addition, the bones protect the internal organs and systems from external damage (Kubatbekov, 2002).

Taking this into account, the aim of the study is to establish the growth patterns of the axial skeleton's bones in hybrid sheep for the development of scientific bases for the production of high-quality meat raw materials. In addition, in

order to learn the diverse essence of the growth processes, to penetrate deep secrets of the principles of these processes, and to learn how to control the development of organisms, means to increase the productivity of animals, reduce the cost of production, and, finally, in a great measure to increase the consumption of people's foodstuffs and raise the general people's welfare in our country (Nikitchenko, 2009; Traisov, 2015; Traisov, 2014; Gogaev, 2016, 1029).

Material and methods

To investigate this issue we used lambs, produced from crossing stud rams of Romney Marsh breed (RM x FC), North-Caucasian meat-wool breed (NC x FC) and Precoce (P x FC) with fine-wooled and coarse-wooled females at the Republican State Agricultural Enterprise "SANIBA" in Prigorodny District, Republic of North Ossetia-Alania, in the period from 2008 to 2016. Five rams from each group at the age of 4, 8, 13 and 18 months were butchered. In these age periods, the dimensions of the skull (the length and depth of calvaria, the length of the spine and its sections: cervical, thoracic, lumbar, sacral and caudal) are taken into account.

Results and discussion

The total length of the axial skeleton is composed of the length of the calvaria and the spine, the results of which are shown in Table 1.

Table 1 Length of bones of the axial skeleton (acc. to average data)

Age, month	Overall length, mm	Including length			
		calvaria		spine	
		mm	%	mm	%
At birth	639.2	123.6	19.34	515.6	80.66
4	1220.2	191.4	15.69	1028.8	84.31
8	1294.2	203.0	15.69	1091.2	84.31
13	1403.7	229.8	16.37	1173.9	83.63
18	1523.0	238.6	15.67	1284.4	84.33

The data show that at birth, on average, calvaria accounts for about a fifth of the total length of the axial skeleton and tends to decrease with age, since its growth rates noticeably lag behind the growth rates of the spine (Table 2). For the suckling period, due to a higher increase in the length of the spine, the proportion of calvaria decreased by 3.67%. With age, this ratio has remained almost unchanged, although

there is a slow but steady increase in the absolute length of both sections of the axial skeleton. During 18 months of youngster's life, the growth rate of the spine exceeded that of calvaria by a factor of 1.5.

**Table 2 Intensity of linear growth of the axial skeleton's bones
(according to average data)**

Index		Age, month					Per 18 months
		at birth	4	8	13	18	
Growth rate	skeleton, total	1	1.909	1.061	1.085	1.085	2.383
	including calvaria	1	1.549	1.061	1.132	1.038	1.930
	spine	1	1.995	1.061	1.076	1.094	2.491
Early maturity, %	skeleton, total	41.51	80.12	84.98	92.17	100	
	including calvaria	51.80	80.22	85.08	95.93	100	
	spine	40.14	80.10	84.96	91.40	100	

The main growth in the length of calvaria occurred during the fetal period, since its length at the time of birth was more than half of the 18-month index (51.8%) (Table 2). Despite the high growth rates of the spine in length, the latter still lagged behind in early maturity of calvaria. As for the origin of the young, it did not have a significant effect on the linear dimensions of the skull and the spine. Thus, at the time of birth the experimental lambs were virtually indistinguishable along the length of the calvaria and the spine (Table 3), the difference was 1.7-3.3 in absolute length, and 0.1-0.4% in relative length. At the time of weaning, the length of calvaria for all groups of animals was also the same, and by the length of the spine the fine-wooled lambs exceeded crossbreds by only 0.5-1.9%. In the following age periods, the intensity of growth of the skeletal sections was low, and without the advantage of the

animals of any group (Table 4), but in 18 months of growth crossbred youngsters have surpassed fine-wooled ones by the length of both sections by an average of 2.4-3.5%.

**Table 3 Length of the axial skeleton's bones of the experimental youngsters
(in % of the total length of the axial skeleton)**

Age, month	Group	Overall length, mm	Including			
			calvaria		spine	
			mm	%	mm	%
At birth	RM x FC	646.6	125.8	19.5	520.8	80.5
	NC x FC	635.5	121.6	19.1	513.9	80.9
	P x FC	635.7	123.5	19.4	512.2	80.6
4	RM x FC	1208.6	191.4	15.8	1017.2	84.2
	NC x FC	1232.5	191.4	15.6	1032.1	84.4
	P x FC	1228.4	191.4	15.6	1037.0	84.4
8	RM x FC	1319.2	203.9	15.5	1115.7	84.5
	NC x FC	1310.5	205.2	15.7	1105.3	84.3
	P x FC	1252.5	199.8	16.0	1052.7	84.0
13	RM x FC	1366.9	231.3	16.9	1135.6	83.1
	NC x FC	1467.0	234.8	16.0	1232.2	84.0
	P x FC	1377.2	223.3	16.2	1153.9	83.8
18	RM x FC	1541.6	241.7	15.7	1299.9	84.3
	NC x FC	1532.6	240.8	15.7	1291.8	84.3
	P x FC	1494.0	233.5	15.6	1261.5	84.4

At the same time there were no regular differences by the relative length of the calvaria and the spine between animals of different groups. It should be noted that by the developing of both sections of axial skeleton, the youngsters, produced from the rams of the North Caucasian meat-wool breed, developed closer to adults than to the peers (Table 5).

Table 4 Coefficient of linear growth of the axial skeleton's bones of the experimental young animals

Skeleton	Group	Age, month				Per 18 months
		4	8	13	18	
Axial, Total	RM x FC	1.869	1.092	1.036	1.128	2.384
	NC x FC	1.925	1.071	1.119	1.045	2.112
	P x FC	1.932	1.020	1.100	1.085	2.350
including calvaria	RM x FC	1.521	1.065	1.134	1.045	1.921
	NC x FC	1.574	1.072	1.144	1.026	1.980
	P x FC	1.550	1.044	1.118	1.046	1.891
spine	RM x FC	1.953	1.007	1.018	1.145	2.496
	NC x FC	2.018	1.071	1.025	1.098	2.514
	P x FC	2.025	1.015	1.095	1.093	2.463

Table 5 Early maturity of the axial skeleton's bones, %

Section	Group	Age, month			
		at birth	4	13	18
Calvaria	RM x FC	52.0	79.2	95.7	100
	NC x FC	50.5	79.5	97.5	100
	P x FC	52.9	82.0	95.6	100
Spine	RM x FC	40.1	78.3	87.4	100
	NC x FC	39.8	79.9	95.4	100
	P x FC	40.6	82.2	91.5	100

The skull consists of calvaria and the mandible, which take into account the length, the depth, the width and the height of the angle (Table 6). In spite of the fact that a partial table is already given an estimate of the linear growth of calvaria, it is necessary to add to this evaluation its development in depth. As can be seen from the data in Table 7, at the moment of birth lambs calvaria was better developed in depth than in length (in % to adults), but in the suckling period they switched places, since its length at this time increased faster than the depth (the coefficient of growth of 1.549 against 1.504).

Table 6 Skull sizes of experimental youngsters (according to average data)

Age, month	Calvaria		Lower jaw		
	length	depth	length	width of angle	height of the angle
At birth	123.6	57.5	86.2	15.6	28.7
4	191.4	86.5	134.0	38.4	53.3
8	203.0	94.8	148.5	43.6	59.4
13	229.8	103.8	161.7	47.4	65.4
18	238.6	108.3	174.0	51.9	70.0

In the period from the weaning to the age of 18 months, the growth's intensity of the length and depth of the calvaria alternated in each subsequent period, their early maturity changed identically, but as a result, over the 18 months the calvaria developed more intensively in length than in depth. By the length and depth of the calvaria (Table 8) at birth and at the age of 4 months the experimental animals had approximately the same indices, but starting from the age of 8 months, the crossbred youngsters slightly exceeded the fine-wooled peers in developing of calvaria.

The lower jaw of experimental animals, regardless of origin, turned out to be a late-ripening part of the skull. In the embryonic period, it developed more slowly than calvaria (Table 7), but after birth, the growth rate was higher than that of calvaria. In the fetal period, its length developed better than the width and height of the angle, and after birth, especially in the suckling period, on the contrary, the high growth of the latter was noted. For 18 months, the first place by the intensity of growth was the width, then the height of the corner and, the jaw's length had the slowest changes. It should be noted that although the differences between the animals of different groups were small, there is still a slight but regular superiority of crossbred youngsters.

Table 7 Intensity of growth of skull bones (according to average data)

Index			Age, month					Per 18 months
			At birth	4	8	13	18	
Growth ratio	calvaria	length	1	1.549	1.061	1.132	1.038	1.930
		depth	1	1.504	1.096	1.095	1.043	1.883
	lower jaw	length	1	1.554	1.108	1.089	1.076	2.019
		width of	1	2.462	1.135	1.087	1.095	3.327

		angle						
		height of the angle	1	1.857	1.114	1.101	1.070	2.439
Early maturity, %	calvaria	length	51.8	80.2	85.1	96.3	100	
		depth	53.1	79.9	87.5	95.8	100	
	lower jaw	length	49.5	77.0	85.3	92.9	100	
		width of angle	30.1	74.0	84.0	91.3	100	
		height of the angle	41.0	76.1	84.9	93.4	100	

The spine plays an important role in the skeleton of animals, so studying its length with age and depending on the origin of the animals is of some interest. First of all, we will analyze the linear growth of the length of the entire vertebral column and its sections regardless the origin of the youngsters. It was established that the spine developed considerably faster in the embryonic period than its mass. At the time of birth, its length was 40.1% of the adult index, while its mass reached only 11.7%. At a later age (13 months) , it was better formed in length (91.4%) than by mass (88.5%), although the growth rate of the mass (growth ratio 8.548) over 18 months of life was significantly faster than linear growth rates (growth ratio 2.491). Newborn lambs has the coccygeal section of the spine better developed (in relation to the total length), then the thoracic, cervical and lumbar spine (Table 9).

Table 8 Skull size of the experimental youngsters, mm

Age, month.	Group	Calvaria		Lower jaw		
		length	depth	length	width of angle	height of the angle
At birth	RM x FC	125.8	57.2	87.6	16.5	29.6
	NC x FC	121.6	56.8	84.9	16.9	27.9
	P x FC	123.5	58.6	86.1	13.4	28.7
4	RM x FC	191.4	88.1	134.1	39.1	53.2
	NC x FC	191.4	86.5	134.5	41.0	53.8
	P x FC	191.4	84.8	133.4	35.1	52.9
8	RM x FC	203.9	96.3	148.6	42.7	60.7
	NC x FC	205.1	95.8	152.0	45.0	60.0

	P x FC	199.8	92.4	145.0	43.1	57.5
13	RM x FC	231.3	103.0	160.3	47.0	67.1
	NC x FC	234.8	107.0	163.2	51.2	65.5
	P x FC	223.3	101.5	161.7	44.0	63.5
18	RM x FC	241.6	107.3	175.4	54.0	70.6
	NC x FC	240.8	108.4	176.4	52.4	70.7
	P x FC	233.5	109.3	170.2	49.3	68.7

Later, this ratio underwent small changes. The largest linear growth of the spine sections occurred in the suckling period (Table 10), with the best increase in the development of the caudal vertebrae, in which the total length increased 2.085 times, which increased their relative length by 1.6%. On the second place was the lumbar spine, which retained its part in the total length of the entire spine. The ratio of the remaining parts of the spine for the suckling period decreased due to low rates of linear growth.

With age, the rates of linear growth of the spine sections changed. After weaning, a relatively higher length gain was preserved in the lumbar and cervical spine, which allowed them to take the first places in absolute increments over the 18 months. In the remaining sections, the proportion to the total length of the spine decreased. This decrease is explained by the fact that the caudal, sacral and thoracic parts of the spine in the embryonic period were formed (in % to adults) earlier than the lumbar and cervical spine, that is, the length of the lumbar and cervical spine turned out to be the late-ripening part of the spine.

Table 9 Length of the spine and its sections (according to average data, in % of total length)

Index		Age, month.				
		At birth	4	8	13	18
Length of spine, total	mm	515.6	1028.8	1091.2	1173.9	1284.4
including: cervical spine	mm	95.8	182.8	206.2	226.0	257.3
	%	8.6	17.8	18.9	19.2	20.0
thoracic spine	mm	130.9	255.7	273.1	294.0	319.6
	%	25.4	24.8	25.0	25.0	24.9

lumbar spine	mm	79.3	159.4	183.4	192.5	214.0
	%	15.4	15.5	16.8	16.4	16.7
sacral spine	mm	41.1	79.5	83.4	91.7	95.3
	%	8.0	7.7	7.6	7.8	7.4
coccygeal	mm	168.5	351.4	345.1	369.7	398.2
	%	32.6	34.2	31.6	31.5	31.0

The origin had a definite effect on the length of the spine sections (Table 11). In the length of the cervical spine, crossbred lambs, both at birth and at an older age, excelled fine-wooled ones. At the age of 18 months, the difference by absolute length was 6.3-12.8%, and by relative - 0.27-1.80%. At the same time, the lumbar spine is better developed in fine-wooled lambs and its ratio in the overall length was significantly higher than in crossbreds. By the length of the sacral spine, the differences between the groups are inessential.

Table 10 Intensity of linear growth of the spine (acc. to average data)

Index		Age, month				
		At birth	4	8	13	18
Growth ratio	spine, total	1	1.995	1.061	1.076	1.094
	including: cervical spine	1	1.908	1.128	1.096	1.138
	thoracic spine	1	1.953	1.068	1.047	0.087
	lumbar spine	1	2.010	1.151	1.050	1.112
	sacral spine	1	1.934	1.049	1.100	1.039
	coccygeal	1	2.085	0.982	1.071	1.077
Early maturity, %	spine, total	40.1	80.1	85.0	91.4	100
	including: cervical spine	37.3	71.0	80.1	87.85	100
	thoracic spine	41.0	80.0	85.5	92.03	100
	lumbar spine	37.1	74.5	85.7	90.04	100
	sacral spine	43.1	83.4	87.5	96.21	100
	coccygeal	42.3	88.7	86.7	92.82	100

Comparison of the intensity of the weight and linear growth of the spine and its sections showed that over 18 months the mass of the spine and its sections increased 8.22-9.20 times, while the increase in its length averaged 2.32-2.69 times. Obviously, the length of the spine is more intensively formed in the embryonic period, reaching 37.1-43.1% of the length of adult animals by the time of birth, whereas this index of the mass of the spine and its sections was only 11.0-12.2%.

Table 11 Length of the spine and its sections (in% of the length of the spine)

Age, month	Group	Length of spine, total mm	Including the length of the section									
			Cervical		thoracic spine		lumbar spine		sacral spine		coccygeal	
			mm	%	mm	%	mm	%	mm	%	mm	%
At birth	RM x FC	520,8	96.6	18.55	134.3	26.79	78.6	15.09	41.7	8.01	169.6	32.56
	NC x FC	513.9	97.0	18.87	127.3	24.77	75.5	14.69	40.1	7.80	174.0	33.86
	P x FC	512.2	93.8	18.31	131.1	25.59	83.8	16.36	41.5	8.10	162.0	31.63
4	RM x FC	1017.2	183.8	18.07	255.3	25.10	157.8	15.51	79.7	7.83	340.6	33.48
	NC x FC	1032.1	183.9	17.82	255.3	24.34	157.8	15.29	79.7	7.72	355.4	34.43
	P x FC	1037.0	180.7	17.42	256.4	24.73	162.5	15.67	79.0	7.62	358.4	34.56
8	RM x FC	1115.7	210.5	18.87	277.9	24.91	182.3	16.34	84.4	7.56	360.6	32.32
	NC x FC	1105.3	211.2	19.11	271.0	24.52	188.6	17.06	86.0	7.78	348.5	31.53
	P x FC	1052.7	197.0	18.71	270.5	25.70	179.3	17.03	79.9	7.59	326.0	30.97
13	RM x FC	1135.6	225.3	19.84	284.8	25.08	190.7	16.79	90.8	8.00	344.0	30.29
	NC x FC	1232.2	231.5	18.79	303.3	24.61	191.3	15.52	95.5	7.75	410.6	33.23

	P x FC	1153.9	221.3	19.18	293.9	25.47	195.5	16.94	88.7	7.69	354.4	30.71
18	RM x FC	1299.9	272.9	20.98	326.5	25.12	211.7	16.29	96.8	7.48	392.0	30.16
	NC x FC	1291.8	257.2	19.91	315.0	24.38	200.1	15.49	95.7	7.41	423.8	32.81
	P x FC	1261.5	241.9	19.18	317.2	25.14	230.3	18.26	93.3	7.40	378.8	30.02

Table 12 Measurement of the chest bone of the experimental youngsters, mm

Measurement	Group	Age, month				
		At birth	4	8	13	18
length	RM x FC	98.0	181.2	188.4	214.0	215.2
	NC x FC	93.5	171.4	191.8	204.4	210.0
	P x FC	100.4	172.2	178.8	190.0	203.0
average		97.3	174.9	186.3	202.8	209.4
width	RM x FC	18.4	27.5	30.8	35.2	39.1
	NC x FC	17.2	29.0	31.8	40.3	41.3
	P x FC	17.7	28.3	29.2	34.9	38.7
average		17.8	28.3	30.6	36.8	39.7
Length to width ratio	RM x FC	5.33	6.59	6.12	6.08	5.50
	NC x FC	5.44	5.91	6.03	5.07	5.08
	P x FC	5.67	6.08	6.12	5.44	5.25
average		5.48	6.19	6.09	5.53	5.28

It should be noted that the different sections of the spine differ in growth rates: the sacral and caudal spine took the first two places in terms of the intensity of weight gain, while in terms of the intensity of elongation they were inferior to others.

The thoracic bone is an integral part of the axial skeleton, consisting of seven segments connected by a cartilaginous tissue. Dimensions and mass of it depend not only on pedigree features, but also on the liveweight and supporting functions. From the data in Table 12, it can be seen that the length of the newborns' chest bone was 5.48 times its width, but this ratio varies with age, since after birth, both measurements in length vary unequally. Over the suckling period, the length of the breast bone increased more than its width. After weaning, the intensity of the latitudinal increase in length was higher, which changed the ratio of the measured

data toward the decrease. In general, for 18 months the width of the breast bone increased more than its length, but in the embryonic period it was earlier formed in length (in% to adults) than in width (Table 13).

Table 13 Intensity of linear growth of the thoracic bone

Index		Group	Age, month					Per 18 months
			At birth	4	8	13	18	
Growth ratio	length	RM x FC	1	1.85	1.04	1.14	1.01	2.20
		NC x FC	1	1.83	1.12	1.07	1.03	2.25
		P x FC	1	1.72	1.04	1.06	1.07	2.02
	average		1	1.80	1.07	1.09	1.04	2.16
	width	RM x FC	1	1.49	1.12	1.14	1.11	2.13
		NC x FC	1	1.69	1.10	1.27	1.03	2.40
		P x FC	1	1.60	1.03	1.20	1.11	2.19
	average		1	1.59	1.08	1.20	1.08	2.24
Early maturity, %	length	RM x FC	45.5	84.2	85.7	99.4	100	
		NC x FC	44.5	81.6	91.3	97.3	100	
		P x FC	49.5	84.3	88.1	93.6	100	
	average		46.5	83.5	88.4	96.8	100	
	width	RM x FC	47.1	70.3	78.8	90.0	100	
		NC x FC	41.6	70.2	77.0	97.6	100	
		P x FC	45.7	73.1	75.5	90.2	100	
	average		44.8	71.3	77.1	92.6	100	

In animals of different groups, the breast bone is developed unequally (Table 12, 13). Fine-wooled lambs at a birth has better developed the breast bone in length, and RM x FC - in width. Crossbred lambs had the breast bone better developed after birth, so at the age of 18 months they exceeded the fine-wooled by 3.4-5.9 %. This is also confirmed by the higher early maturity of crossbred lambs along the length of the breast bone.

At the age of 18 months, crossbred youngsters had better development of the brisket bone in width, surpassing the fine-wooled by 1.0-6.7%.

The foregoing allows us to conclude that:

- after birth the rate of calvaria's growth in length is lower (ratio growth is 1.93) than the spine's one (2.49), as a result of which the relative length of the first in comparison with the newborn decreased by an average of 3.67%, and the spine, on the contrary, increased by the same degree. The origin of the young had no significant effect on the length of the calvaria and the spine;
- in the postembryonic period, the calvaria developed more intensively in length (growth ratio was 1.930) than in depth, but in the jaw the width of the angle (growth ratio 3,327) took the first place by the intensity of growth, followed by the height of the angle (2.439) and the length (2.019);
- over 18 months of life, the mass of the spine and its sections of the experimental youngsters increased by an average of 8.22 - 9.20, and the increase in length was 2.32 - 2.69. This difference is explained by the fact that in the embryonic period the spine developed more intensively in length than in the mass, as a result of which the length of the spine at the time of birth was 37.1 - 43.1% of the spine's length at the age of 18 months. And its mass is only 11.0-12.2;
- crossbred youngsters had a better developed thoracic bone than fine-wooled ones, which is typical for sheep of meat-wool breed.

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***Innovational competitive economic development model
of industry fields Azerbaijan State Oil and Industry
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Abstract: Prognosis model of competitive economic development of the enterprises engaged in water supply, waste cleaning and treatment has been worked out based on world practice of organization and management of the innovation projects.

With this purpose correlation relation between indices having special weight has been set up in innovational activity of the area. From this relation the weight coefficient of the indices influencing innovation activity has been calculated and strategic directions of competitive development of the field have been offered.

Keywords: innovation, enterprise, industry, fund output, rivalry, production.

Introduction: Studies show that competitive economic development can be achieved on the basis of effective management of innovation projects. That's effective innovative activity of the field can be determined by its increasing [1].

At the same time world experience shows that assessment of any innovation project is set up on methodological principles determining investments efficiency in innovation activity [4].

With other words, looking at the prognosized project as "black box", that's studying internal structure of the project and its realization mechanism, by comparing that's value of resources or expenses of the project intel money flow of the project with outlet money flow it is possible to assess its effective activity [5].

Macroeconomic indices of industry sector of Azerbaijan.

For this purpose let's use main macroeconomic indices of the field [2,3] (table 1).

Table 1

Main macroeconomic indices of Azerbaijan industry

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Addition al cost, current prices, mln. manat	3269	6190	10732	16871	23497	17490	21942	27909	26958	24471	26442
Total profit, current prices, mln. manat	2624	5340	9763	15811	22258	16316	20743	26082	26880	24440	22494
New profit, current prices, mln. manat	2310	4877	9259	15138	21451	15660	20008	25003	25461	23554	21604
Average workers annual number, th	175,3	179,3	184,3	194,5	194,7	192,3	181,8	176,7	181,0	197.2	197.2
Average monthly nominal salary, manat	187,0	213,2	260,9	344,8	424,5	412,4	451,8	518,6	590,1	630.8	694.8
Main funds (till the end of the year mln. manat)	15145	18231	21037	28476	30703	35093	37248	41657	46769	53529	61801
Investments to main capital, mln. manat	3916	4170	4295	4540	4249	3225	4276	5370	6040	7500	7640
*Azerbaijan State Statistic Committee, Baku, 2015											

Using table indices, it is possible to set up the prognosis model of efficient organization and management of innovation activity in the field.

Table 2

**Competitive and innovational economic development models of
Azerbaijan industry enterprises**

Description of model	Purpose of model	Essence of the indices
1. $y = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2$	Prognosis of production volume increase	y – production volume; x ₁ – fund output; x ₂ – fund arming;
2. $y = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3$	Prognosis of production volume increase	y – production volume; x ₁ – MIPF cost; x ₂ – investments to main capital; x ₃ – technological innovations expenses;
3. $y = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3$	Prognosis of fund output increase	y – fund output; x ₁ – volume of manufactured product; x ₂ – MIPF cost; x ₃ – MIPF infusion;

Source: It has been calculated by the outhor.

Algorithm of prognosis model of economic development of industry
enterprises in Azerbaijan

Let's set up correlation dependence between the indices. Using the method of smallest squares it is possible to set up prognosis model of efficient organization and management of innovation activity in the field [5,6] (table 2).

Let's discuss economic essence of the models described in table 2.

Using regression model algorithm the correlation relation between the indices influencing product volume can be written in two variants.

The first variant:

$$y = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 \quad (1)$$

Here, y is industry product volume manufactured in this field (%), x₁ is fund output indicator, x₂ is indicator of fund arming.

$\alpha_0, \alpha_1, \alpha_2$ are regression coefficients. If to apply the smallest squares method to (3.1) dependence then we get the following regression coefficient:

$$\alpha_0 = -5.9; \alpha_1 = 0.4; \alpha_2 = 0.6$$

If to write these coefficients in (3.1) then this dependence will be:

$$y = -5.9 + 0.4x_1 + 0.6x_2 \quad (2)$$

The obtained (3.2) correlation dependence makes possible to say the following prognosis decisions for competitive economic try development enterprises of Azerbaijan industry:

1. 1% increase of fund output of industry enterprises brings to 0.1% increase of industry products in this field.
2. 1% increase of fund arming level of the industry enterprises also causes 0.6 of increase of industry products.

The second variant is:

$$y = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3 \quad (3)$$

Here y is industry product volume manufactured in this field (manat); x_1 is cost of the main industrial production funds (MIPF) (manat); x_2 is the investment to main capital (manat); x_3 is the technological innovations expenses (manat).

$\alpha_0, \alpha_1, \alpha_2, \alpha_3$ are regression coefficients.

If to apply the smallest square method on (3.3) dependence then we'll find the following regression coefficients:

$$\alpha_0 = 19.1; \alpha_1 = 0.1; \alpha_2 = 0.1; \alpha_3 = 0.01$$

If to write these coefficients in (3.3) then this dependence will be

$$y = 19.1 + 0.1x_1 + 0.1x_2 + 0.01x_3$$

Obtained (4) correlation dependence makes possible to show the following prognosis opinions on the economic development of the field.

1. 1% increase of MIPF causes 0.1% increase of industry product manufactured in this field.
2. 1% increase of investments to main capital brings to 0.1% increase of industry product produced in this field.
3. 1% increase of technological innovations expenses causes 0.01% increase of the industry product manufactured in this field.

Let's set up the correlation relation between the indices influencing fund output in this field. If to use regression model, then correlation relation between the indices influencing the fund output in this field will be as following:

$$y = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3 \quad (5)$$

Here y is fund output (%); x_1 is the volume of the product (%); x_2 is the cost of the man industry production funds (MIPF) (%); x_3 is the indices of MIPF influsion (%).

$\alpha_0, \alpha_1, \alpha_2, \alpha_3$ are regression coefficients.

If to apply the smallest squares method to (5) dependence, then we can find the following regression coefficients.

$$\alpha_0=253.3; \alpha_1=0.95; \alpha_2=2.44; \alpha_3=-10.67$$

If to write these coefficients in (5) then this dependence will be:

$$y = 253.3 + 0.95x_1 + 2.44x_2 - 10.67x_3(6)$$

The obtained correlation dependence (6) gives opportunity to show the following prognosis decisions:

1. 1% increase of the manufactured product in this field causes 0.95% increase of fund output indicator.
2. 1% increase of the cost of main production funds in the field causes 2.44% increase of fund output indicator.
3. 1% increase of MIPF influsion causes 10.67% reduce of the fund output index in this field.

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The research of dependence of well debit on the product costs

Abstract: The costs per ton of oil production and gases are the most important qualitative indicator of the work of oil and gas producing enterprises. The cost per ton of products at oil and gas production enterprises is formed as a result of the interaction of production conditions and factors characterizing the various changes in the specific implementation of the production process, ultimately they determine the nature, magnitude and dynamics of the cost per ton of oil and gas production. It reflects all aspects of production and technical and economic activities, i.e. The level of technique, technology, the organization of the production, the efficiency of the use of productive assets, etc.

Keywords: Unit costs, technological parameters, water cut, liquid, model, math statistics, adequacy.

Исследование зависимости затрат на продукцию от дебита скважин

Аннотация: Затраты на одну тонну добычи нефти и газы - важнейший качественный показатель работы нефтегазодобывающих предприятий. Затраты на одну тонну продукции на нефтегазодобывающих предприятий формируется в результате взаимодействия производственных условий и факторов, характеризующих многообразные изменения в конкретном осуществлении производственного процесса, в конечном итоге ими же и определяется характер, величина и динамика затраты на один тн добычи нефти и газа. В ней отражаются все стороны производственно-технической и хозяйственной деятельности, т.е. уровень техники, технологии, организации производства, эффективность использования производственных фондов и т.д.

Ключевые слова: Себестоимость единицы продукции, технологические параметры, обводненность, жидкость, модель, математическая статистика, адекватность.

В последние годы на месторождениях суши республики технико-экономические показатели добычи нефти ухудшились, что связано с истощением запасов и уменьшением текущей добычи нефти. Разработка этих месторождений характеризуется большой выработанностью запасов, высокой степенью обводненности, которая колеблется в пределах 88-98% отдельным нефтегазодобывающим предприятиям, а также практически полностью механизированным фондам эксплуатационных скважин. Все это привело к тому, что дебит добывающих скважин резко снизился. В этих условиях важнейшее значение приобретает проблема, связанная с повышением экономической эффективности добычи нефти на основе улучшения использования эксплуатационных фондов нефтяных скважин на суши республики.

Добыче нефти и газа как отрасли добывающей промышленности имеет ряд особенностей, сказывающихся на формировании затрат на единицу продукции и структуре затрат на производство. Поэтому одним из ведущих направлений повышения эффективности производства является исследование затраты на единицу добычи нефти и факторов, влияющих на нее с целью выявления резервов снижения издержек производства. Затраты на добычу нефти и газа является важным показателем, характеризующим степень эффективности разработки нефтяных месторождения. Исследований этого вопроса в экономической литературе посвящено много работ [1-4].

Увлечение добычи попутной воды, т.е. обводненность продукции приводит к значительному повышению затраты на одну тн добычи нефти. При росте обводненности увеличивается затраты, зависящие от объема извлекаемой жидкости: энергетические затраты на добычу нефти механизированным способом, затраты по искусственному воздействию на пласт, расходы по сбору и транспортировке нефти, по технологической подготовки нефти.

Уместно сказать, что до сих пор при перспективном планировании затрат на добычу нефти объединению не учитывается в достаточной степени влияние обводненности продукции на затраты, зависящие от объемов извлекаемой жидкости. Степень влияния обводненности на затраты на одну тн нефти в раз-

личные этапы эксплуатации месторождения неодинакова. Поэтому при оценке влияния этого фактора целесообразно рассматривать изменение затрат, зависящих от объемов жидкости, по этапам эксплуатации.

Дифференциация плана добычи нефти по способам эксплуатации скважин является необходимым условием для оценки перспективы развития технических средств подъема жидкости на поверхности. При планировании способов эксплуатации скважин исходит из технических возможностей и граничных условий применения каждого из них. Последние определяются по данному исследованию сравнительной экономической эффективности способов, эта оценка учитывается при планировании добычи нефти по способам.

Однако экономическое обоснование выбора способа эксплуатации может быть осуществлено и непосредственно в процессе планирования в увязке с конкретной категорией скважин и намечаемой добычей нефти. Естественно, выбор способа эксплуатации и определяет эксплуатационные затраты. Каждый способ имеет свои преимущества и недостатки. Так, компрессорный способ эксплуатации имеет следующие преимущества: 1) простота конструкции оборудования, 2) расположение всего оборудования на поверхности простота ее обслуживания, 3) возможность отбора больших количеств жидкости, 4) простота регулирования дебита скважин и т.д., но также этот способ эксплуатации имеет серьезные недостатки: 1) низкий коэффициент полезного действия подъемника, 2) необходимость строительства дорогих компрессорных станций.

Анализ компрессорного способа эксплуатации скважин на месторождениях суши республики показывает, что затраты на оборудование в этих скважинах 3-4 раза превышает скважин, эксплуатируемых насосным способом.

В случаях снижения дебита скважин затраты на энергию для подъема одну тонны нефти резко увеличивается и поэтому эксплуатация малодебитных скважин компрессорным способом экономически нецелесообразно. С целью уменьшения затраты на единицу продукции скважины переводятся с компрессорного на насосный эксплуатации. На месторождениях суши республике большое распространение получил глубинно насосный способ эксплуатации, 90 % объема добычи по суше получается именно этим способом. Широкому внедрению глубинно-насосной эксплуатации способствуют простота конструкций всей установки, несложность ее обслуживания и возможности получения дебитов из скважин в довольно широком диапазоне, от нескольких сот кило-

граммов до сотен тонн в сутки. Оценка эффективности способа эксплуатации должна производиться путем сравнения основных технико-экономических показателей способа по скважинам одинаковой производительности, которые на практике не всегда удовлетворяются, находящиеся в одинаковых геологических условиях. В качестве основного критерия экономической эффективности способа эксплуатации принимаются минимальные затраты на одну тн добычи нефти.

Установлено, что в зависимости от способа эксплуатации затраты на обслуживание наземных оборудований и их ремонт сильно отличаются. Так, ремонт и обслуживание наземного оборудования по фонтанным скважинам превышает аналогичные затраты по компрессорным скважинам в два раза, по насосным скважинам четыре раза. Все это требует по нашему мнению, учета этого фактора при определении затрат по добыче одной тонны жидкости по способом эксплуатации. При определении затрат по ремонту и обслуживанию наземного оборудования скважин по конкретному способу необходимо учесть в статьях расходов: «основная зарплата производственных рабочих», «отчисления на социальное страхование», расходы по содержанию и эксплуатации оборудования» соотношения сложности работ 1:2:4, которое отмечено выше и применять специальный «коэффициент сложности». Различная эффективность использования оборудования обусловлена различными силами эксплуатации, определяемыми количеством откачиваемой жидкости, высотой ее подъема и ее физико-геологическими свойствами. Кроме того, на эффективность работы оборудования оказывает влияние такие факторы, как выбор оборудования и режим откачки, качество изготовления отдельных его узлов, искривление ствола скважин и т.д. Эксплуатация скважин компрессорным способом оправдывает существенные капитальные вложения и текущие затраты в процессе эксплуатации скважин в тех случаях, когда дебиты скважин значительно превышают добываемые возможности насосных установок.

Определение затрат на одну тн добычи нефти по отдельным способом эксплуатации в объединении «Азнефть» производится по мере необходимости.

Однако в условиях рыночных отношений для создания конкурентоспособной продукции необходимым условием при прочих условиях является снижения издержек производства. Поэтому определения затрат на единицу добычи нефти по отдельным способом эксплуатации является актуальной проблемой.

Различие затрат на добычу нефти по отдельным способам эксплуатации, а также изменения в калькуляции затрат предопределяет актуальность рассмотрения проблемы распределения затрат по способам эксплуатации. Неодинаковые затраты на добычу нефти по способам эксплуатации обусловлены как различием в энергетических затратах, затратах на подземный и капитальный ремонт скважин, амортизация прочих основных средств, так и разным дебитом скважин при отдельных способах эксплуатации.

Обобщение материалов по анализу затрат на 1 тн добычи нефти и анализ литературных источников позволяет выделить ряд мероприятий, способствующих экономии затрат:

- оптимизация плотности сетки скважины;
- сокращение простоев нефтяных скважин за счет увлечения межремонтного периода их работы;
- проведение геолого-технических мероприятий на малодебитных скважинах;
- рациональный подбор оборудования в соответствии с эксплуатационной характеристикой скважины.

На основе проведенного анализа указывается, что величина затрат на одну тн нефти в значительной степени, определяет решение вопроса о выборе наиболее эффективного вида насосного оборудования, вследствие чего правильное прогнозирование затрат на единицу продукции играет важную роль в деле улучшения основных экономических показателей нефтедобывающих предприятий. Одним из ведущих направлений этой проблемы является исследование тенденции изменения затраты на одну тн нефти и факторов, влияющих на нее с целью выявления резервов снижения издержек добычи нефти и повышения экономической эффективности разработки нефтяных месторождений. Затраты на одну тн добычи нефти и газа отличается постоянными изменениями ее уровня и структуры по годам и по отдельным нефтегазодобывающим предприятиям в зависимости от изменения соотношения числа месторождений, находящихся на различных стадиях эксплуатации, от изменения горно-геологических и других условий добычи.

Анализ показал, что вероятный характер нефтедобычи в целом показателя затраты на одну тн нефти, требует с этой целью пользоваться математической статистикой в частности, корреляционного-регрессионным анализом.

Традиционные методы анализа основаны на изучении изолированного влияния отдельных факторов. Однако, в реальной действительности уровень показателей эффективности формируется при определенном воздействии множества разнообразных и взаимосвязанных влияний, каждый признак следует принимать во внимание. Сущность конкретного метода анализа состоит в том, что имеется возможность количественно оценить дифференцирование влияния параметров и условий производства на исследуемый показатель с учетом взаимосвязи факторов. Создание многофакторных корреляционных моделей можно в основном свести к следующему. Необходимо определить круг факторов, влияющих на изучаемое явление, отобрать наиболее существенные из них и дать им количественные характеристики, выбрать тип математического уравнения, наиболее правильно выражающего сущность изучаемых зависимостей, дать статистическую оценку полученным результатам и дать экономическую интерпретацию построенной модели. Корреляционная зависимость отражает закон множественности причин и следствия. Поэтому при изучении характера связи явлений приходится из многих причин выделять главные. Основная задача экономико-статистического анализа уровня и динамики затраты на одну тн добычи нефти и газа сводится к выявлению резервов снижения затрат по факторам. Факторы затрат на одну тн продукции - это объективные, постоянно действующие причины, влияющие на ее изменение. Они могут оказывать на уровень затрат на одну тн нефти как повышающие, так и понижающие действия.

Установлено, что на уровень затрат на одну тн нефти влияют как внешние, так и внутренние показатели. Некоторые показатели связаны с деятельностью предприятия, а некоторые не связаны. На основе априорного анализа и анализа литературных источников нами были выбраны следующие показатели, которые влияют на уровень себестоимости добычи нефти:

Y - затраты на 1 тн добычи нефти; доллар/тн

X_1 - удельный вес механизированной добычи нефти, %;

X_2 - объем закачки воды в пласт, млн м³;

X_3 - средний дебит на 1 скважино-месяц отработанный, тн / скв, мес.

отраб.;

X_4 - эксплуатационный фонд скважин;

X_5 - обводненность продукции, %

X_6 - стоимость производственных фондов, тыс. доллар.,

X_7 - фондоемкость на одну скважину эксплуатационного фонда, тыс. доллар.,

X_8 - коэффициент эксплуатации, доли единиц.

Исследования велись на основе «завод - лет» с целью увеличения объема выборки, т.е. на Апшеронском полуострове действуют 6 НГДУ и к анализу привлечены последние пять лет; всего объем выборки составляет 30 точек ($n=30$). После тщательного анализа были оставлены четыре фактора и получена модель затраты на одну тн нефти в линейном виде:

$$Y = 839771,4 + 4340,08 X_3 - 55,97 X_4 - 20495,92 X - 6164,30 X_8. \quad (1)$$

Анализ матрицы парных коэффициентов корреляции показал, что между факторами удельным весом механизированной добычи нефти (X_1) и эксплуатационным фондом скважин имеется тесная связь, о чем свидетельствует парная корреляция $r_{X_1 X_4} = 0,902$. Действительно, в условиях суши Азербайджана практически весь эксплуатационный фонд относится к механизированной, поэтому при моделировании оставили только фактор X_4 .

Между объемом закачки воды в пласт (X_2) и затраты на одну тн нефти (Y) - имеется слабая связь, т.е. $r_{Y X_2} = 0,278$. Это связано с тем, что в последние годы охват месторождения суши Азербайджана водным воздействием из года в год уменьшается, также уменьшается объем дополнительной добычи за счет водного воздействия. Поэтому фактор X_2 из дальнейшего исследования был исключен.

Кроме того, фактор стоимость производственных фондов (X_6) и фондоемкость на одну скважину эксплуатационный фонда тем или иным образом связано с фактором X_4 (эксплуатационный фонд скважин) и связь (прямая и обратная) между этими факторами существенна, т.е. более, чем 0,85 и поэтому в дальнейших исследованиях оставлен фактор X_4 .

Анализ полученных моделей хорошо показывает истинное положение. Коэффициент множественной корреляции для этой модели $R^2 = 0,748$, т. е. это говорит о том, что уровень затрат на одну тн добычи нефти на 74,8 % зависит от вышеперечисленных факторов, которые включены в модель. Анализ полученной модели затраты на одну тн добычи нефти по известным критериям показывает, что расчетное значение F - критерия Фишера ($F_{\text{расч}} = 6,2987$) превышает табличное значение с вероятностью 95 % примерно в 2 раза ($F_{\text{табл}} = 2,52$);

расчетное значение t - критерия Стьюдента по всем факторам с вероятностью 95 % превышает табличное значение ($t_{\text{табл}}=2,02$); средняя ошибка аппроксимации $\bar{\varepsilon}=8,92$, приемлемо для экономических проблем. Модель затрат на одну тн добычи нефти также не лишена недостатков, но несмотря на это, она имеет простой вид, легко решается и экономически интерпретируется. Модель затраты на одну тн нефти может быть использована для прогнозирования данного показателя на ближайшую перспективу.

Технико-экономические факторы под воздействием которых, находятся уровни и динамика затрат на добычи нефти, объединяются в : изменение природных условий и способов добычи нефти, в том числе изменение средних дебитов скважин; изменение обводненности добываемой нефти; изменение доли добычи нефти по способом эксплуатации и т.д. Нижи нами рассмотрен вопрос о зависимости затраты на одну тн добычи нефти от среднего дебита скважин. Несмотря на то, что уровни затраты на одну тн нефти в нефтяных районах определяются под воздействием всех указанных выше групп технико-экономических факторов, главным из них остается изменение средних дебитов скважин, падение их по мере выработки запасов и роста обводненности. Решающая роль дебита скважин обусловлена тем, что большая часть эксплуатационных затрат не пропорциональна дебитам скважин, а находится в прямой зависимости от фонда скважин, результате при падении дебита наблюдается рост затраты на одну тонны нефти. Для исследования зависимостей между затратами на одну тн нефтии дебитом скважин были собраны фактические материалы по НГДУ Апшеронского полуострова и разработана модель вида:

$$C=61,88q^{-0,3817} \quad (2)$$

Где C —затраты на одну тонны нефти по НГДУ Апшеронского полуострова;

Q — средний дебит на скважин-месяц отработанный, тн/скв. мес. отработ.

Полученная модель экономически интерпретируется, коэффициент корреляции $R=0,6346$.

Резюмируя вышеизложенное, отметим, сто для повышения эффективности производства необходимо улучшать использование фонда скважин, совершенствовать определение затраты на одну тн единицы продукции по способом эксплуатации, которые связаны с дебитом скважин, коэффициентом обводненности, коэффициентом эксплуатации и т.д. Эти вопросы также связанны с

внедрением геолого-технических мероприятий, которые способствуют интенсификации добычи нефти и тем самым повышают рентабельность производства.

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Levels of teachers' ict competence in the field of web services

Abstract: The study analyzes the survey findings of teachers to define the level of how they use ICT tools for their professional activities. The teachers from some higher educational institutions of Ukraine took part in the disclosure questionnaire involving 23 questions. The author using on-line services created such a questionnaire because of its helpfulness in better distribution of teachers among sufficient, optimum and creative levels. The survey was conducted in the period from November 2016 up to February 2017. The statistical sample consisted of teachers from some Ukrainian universities.

Keywords: ICT competence, web services, educational process, academic staff.

1. INTRODUCTION

Studying issues related to the development of information and communication technologies (ICTs) in all areas of human activities attracts more and more attention from the scientific community. Moreover, some influence of ICTs on the educational process is actively discussed without any limits as to the accreditation levels or forms of the educational institution [6; 8].

The ICT adoption requires numerous changes in the university teachers' competence [2] like some self-perfection, search for new educational theories, procedures, training techniques, as they are based on ICT [9]. Undoubtedly, any forward-minded teacher must acquire skills of electronic tools, in particular, when popular on-line applications (web services) expand possibilities, allow creating a certain training climate (environment) where students learn the educational content easier and teachers simpler work with students with feeling concern for studying the subject. Results of many pilot projects prove that the potential of on-line applications

as a building block forming modern advanced competent specialists (university teachers) is large, complex and valuable [4]. Such applications help to solve issues related to education, as they help to build competencies, which achievement-oriented specialists should possess [1], and it is just the case. Teachers have more opportunities to organize classes with their help as well as students have more opportunities to solve the tasks assigned to them [3].

On-line applications are good and indispensable tools that a modern teacher should have, as they allow them to develop a creative level of their ICT competence. One can confidently say that some teachers have already used some web services. Therefore, it will be expedient to find out their ICT competence level. However, there are factors that hinder the process of using Web services in the learning process. The solution to these issues is topical not only for teachers, but also for engineers interested in it and developing such applications (web services).

The purpose of this study is to define the level of the ICT competence formation and determine conditions for the teachers' self-realization.

2. METHODOLOGY

Rigorous research in the period from September 2016 up to February 2017 involved 215 teachers from various institutions of learning. There were 21.6% of men and 78.4% of women among them. Active participants of this research became 18 professors, 55 associate professors, 95 university teachers, 27 schoolteachers, and 20 graduate students. The author of the questionnaire delivered it to the respondents through the e-mail, social networks (Facebook, LinkedIn, and Google+) and gave it personally. The experimental study was held thanks to the questionnaire titled: "The ICT Proficiency Level – Teachers' Competences". It served to define the teachers' levels of competences: basic, sufficient, and creative. Respondents were asked to choose answers that were divided in accordance with the Likert response scale. Each question was evaluated according to the scale: "Yes" - 3, "Not Sure" - 2, "No" - 1. Questions related to gender, pedagogical experience, type of institution, and position make possible to talk about the diverse composition of respondents and their equal distribution, and hence the correctness of sampling. The statistical program SPSS 17 was used to process obtained results.

3. Research Findings

Any computer competence [7] is a significant part of the education system [5]. All the teachers and students should possess it. Student needs are distinctive and, in their turn, require highly qualified teachers (especially in ICTs). Consequently, it became an urgent issue for our research, in particular, to find out the teachers' levels of their ICT competence and quality of conditions for actual use.

The academic staff from various levels of educational institutions were involved in the study to define the level of their ICT competence. Processing questionnaires, we selectively distributed all the respondents into two groups. The educational institution type as the place of the respondents' work like schools – 16.7%; lyceums, gymnasiums, colleges – 22.1%; educational and industrial plants – 5.6%; boarding schools – 5.6%; institutes and universities – 50%, became the basis for the first group. The second one – under the pedagogical experience: up to 5 years – 5.4%; from 6 to 10 – 5.4%; from 11-20 – 10.8%; from 21-30 – 21.6%; from 31 and more – 56.8%. When selecting for groups, we relied on the expert evaluation. The number of experts was determined under the method suggested by V. Cherepanov [10]. With the help of calculations at the level of confidence probability $\gamma = 0.95$, the reliability of the expert evaluation is sufficient 15. The leading scientists from T. H. Shevchenko Chernihiv National Pedagogical University, Chernihiv National Technological University, and Rivne State Humanitarian University became the members of the expert group. Having analyzed both groups of respondents, the experts concluded that to assess the second group where the pedagogical experience taken into account would be mostly qualitative than the first one which had a general character.

The task of the pilot study of the early stage was to define the teachers' level of the ICT competence at three levels revealing each respondent's potential. Teachers being aware of web services, electronic tools, e-learning, properties of information and communication technologies, as well as very rarely using ICT resources (and only those that are developed by other authors), and wanting to gain experience in developing their own web resources had the *basic level*. Those, who belonged to the *sufficient level*, had a strong knowledge of ICTs, web services, e-media, and e-learning. Their didactic abilities are known as well as their little practice of using some electronic tools. They are interested in the experience of their colleagues. Teachers having some deep and clear insight into the ICT terminology

and applicable fields of Web services as well as being able to allocate modern electronic tools from the proposed list belonged to the *creative level*. Moreover, they are familiar with web services, know how to use them both in a real-case scenario and in future, as well as have their own web sites, and blogs. Additionally, they take part in marathons, competitions, master classes, workshops, and coaching sessions with the demonstration. Those, who have such a level, strengthen the competence related to the new web services and interested in the experience of colleagues.

It should be noted that the data obtained herein are only the respondents' judgements; therefore, they may not coincide with the real possibilities of solving problems based on specific examples. Undoubtedly, those incumbent teachers do not use ICT tools in their professional activities.

Unfortunately, within the limited volume of the article, we are forced out of giving an estimation only to those judgments, which are directly related to the level detection of teachers' ICT competences. For example, the respondents answered "Yes" – 80%; "No" – 10%; and "Not Sure" – 10% the question like "Do you know what web services (online applications), e-journals are?" As to the question: "Are you familiar with the editors of creating online tests (master test, onlinetestpad, Google Forms)?" the following results were obtained: "Yes" – 56.5%; "No" – 30.4%; and "Not Sure" – 13%. There were 87% respondents for innovative technologies and 13% – for traditional in case of the question like "What education technologies do you support?" Answering the question: "Do you have your own created websites, educational blogs?" the respondent said "Yes" – 53.6%; "No" – 42.9%; "Not Sure" – 3.6%. Another question: "Did you take part in marathons, demonstration sessions, and work-shops on ICT development?" showed that respondents answered it as "Yes" – 60.9%; "No" – 39.1%. The question "Would you take part in master classes on developing web services?" was answered as "Yes" – 87%; "No" – 8.7%; "Not Sure" – 4.3%. Putting the question: "Do you use your own video lessons in class?" we got the following answers: "Yes" – 39.3%; "No" – 57.1%; "Not Sure" – 3.6%. The respondents replied "Yes" – 40.9%; "No" – 50%; and "Not Sure" – 10% to the question: "Do you use your own e-Gradebook developed to register the student achievement in class?" and "Yes" – 42.9%; "No" – 50%; "Not Sure" – 7.1% to the question: "Do you use your own simulators in class?" There were answers: "Yes" – 42.9%; "No" – 50%; and "Not Sure" – 7.1% to the question: "Do you use logical games with web services?"

It ought to be noted that teachers are not aware of the existence of many web services, and this is 51% of all the respondents. There are also those who do not know what web services or electronic journals or gradebooks are – 20%. More than 42.9% of respondents are familiar with the editors creating online test forms (they help to perform many routine tasks). A slim majority (55%) of teachers do not have their own electronic resources (websites, electronic journals, e-gradebooks, etc.). In the study, the question "What web services, in your opinion, are the most relevant for learning in the educational process?" was put and the respondents must rate online applications from 2 to 5 points. Interactive exercises, master-tests, creation of websites, and Google documents got 5 points. It points to the fact that respondents are greatly interested in web services. The most popular responses to the question "Which of the following technologies would you like to know better?" were the creation of simulators, web sites and blogs, web quests, knowledge maps, testing and management of training systems.

Thus, the obtained results allowed defining the ICT competence of pedagogical workers. At the next stage, we analyzed the data, according to which we can say that teachers with a work experience of 30 or more years have a basic level, and it is 15%; sufficient – from 11-20 years – 49.6%; and creative – from 0-10 years – 35.4%. Data obtained in the process of our research study testify that the teaching experience does not influence on the level of their ICT competence, as the majority of young teachers are engaged in their self-education, self-development and try to improve their ICT competence.

To create balanced material, financial, organizational, psychological, and motivational conditions is required for any effective activity in case of the pedagogical workers' self-realization. We defined in our research study the level of school conditions mentioned above for each teacher. Research findings showed that 61.5% of respondents unsatisfactorily assessed financial conditions but positively material, organizational, psychological and motivational. This is strong proof that financial conditions are worse as to their organization than others are.

4. CONCLUSIONS

It is worth summarizing, the results presented herein show that young teachers are more proficient in ICT competence. We emphasize that half of the educators know little about the effectiveness of using web services (consequently,

they have such a low-level ICT competence). As a result, they have not had own electronic resources (websites, blogs, electronic journals, video lessons, simulators, and logic games) as one of the main tools assisting to organize the educational process yet. The obtained data made possible to appraise the educational institution conditions (material, financial, organizational, psychological, and motivational) helpful in any qualitative innovation as well as to confirm significant shortcomings on the part of the educational institution management.

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On some pedagogical aspects of the teachings of Islam

Abstract: The article attempts to analyze some aspects of the educational doctrine of Islam. The author reveals the socio-pedagogical significance of the prophetic mission of Muhammad. Humanity and humanism in Islam are considered. The role assigned to knowledge in the life of the Islamic Ummah is defined. The affirmation of Islam approved by Islam is based on knowledge and morality.

Keywords: upbringing, humanism and humanity in Islam, knowledge, morality, action.

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О некоторых педагогических аспектах учения Ислама

Аннотация: В статье предпринята попытка анализа некоторых аспектов воспитательной доктрины Ислама. Автором раскрывается социально-педагогическое значение пророческой миссии Мухаммада. Рассматриваются гуманность и гуманизм в Исламе. Определяется роль, отводимая знанию в жизни исламской уммы. Раскрывается утверждаемая Исламом богоугодность действия, основанного на знаниях и нравственности.

Ключевые слова: воспитание, гуманизм и гуманность в Исламе, знание, нравственность, действие.

Сегодня, в пору драматических событий, связанных с идеологическим разночтением учения Ислама приобретает актуальность исследование его педагогической доктрины, позволяющее гармонизировать воспитательные влияния, осуществляемые в семье и конфессиональном сообществе с педагогическим процессом, осуществляемым в светских образовательных практиках. Педагогическая доктрина Ислама, по нашему мнению, достойна стать объектом активных исследований педагогов, культурологов, теологов, философов. В этой связи попытаемся изложить свое видение некоторых аспектов Педагогики Ислама.

Пророк Мухаммад не только возвестил человечество о принципах и правилах поклонения Богу, но также явил миру добродетели, которые должны быть присущи мусульманам. О социально-педагогическом значении миссии Мухаммада свидетельствует изречение самого Пророка: «Я пришел, дабы усовершенствовать улучшить нравы среди людей». [1] Сунна Пророка, на протяжении почти полутора тысячелетий остается главным средством нравственного воспитания подрастающих поколений мусульман. В Коране говорится: «Именно пророк Всевышнего для вас хороший образец» (21 аят сура «Единомышленники»). Необходимость распространения среди верующих знаний в области дозволенного и запретного – полезного и вредного способствовало формированию и развитию методологии (усул) выработке принципов обоснования положений исламского права (фикх).

Начиная с первых проповедей Мухаммада, и в течение всего периода своего развития, Ислам является мощным воспитательным институтом, призванным решить задачу воспитания добродетельной личности.

В Коране подчеркивается общечеловеческое значение миссии Мухаммада – Учение Ислама ниспослано, через Пророка Мухаммада как милость Господа всему человечеству, руководство верного пути к обретению каждым человеком божьей милости в обоих мирах. Сегодня, когда среди значительной части общества, мало знакомой с учением ислама, распространено ошибочное мнение, что жизнь человека в Исламе не имеет особой ценности, важно подчеркнуть, что воспитательная доктрина Ислама основывается на утверждении высочайшей (практически абсолютной) ценности жизни каждого отдельного (невиновного) человека. Гуманизм, забота о человеке его свободе, достоин-

стве и развитии ясно проходит через все учение Ислама. Свои выводы мы основываем на следующих источниках:

Во–первых, из содержания аята 35 Суры 5, который гласит: «Кто убил душу не за порчу на земле, тот как будто бы убил людей всех. А кто оживил ее, тот как будто оживил людей всех».

Во–вторых, из пункта первого «Всеобщей Исламской декларации прав человека», опубликованной в Париже 19 сентября 1981 года, в которой говорится следующее: «Человеческая жизнь священна и неприкосновенна, и для ее защиты должны предприниматься все усилия. В частности, никто не может быть ранен или предан смерти, кроме как властью закона, (основанного на установлениях Всевышнего, даровавшего людям жизнь, изложенным в Священных писаниях). Статья 2 А. Каирской декларации прав человека в Исламе, принятая на XIX Исламской конференции министров иностранных дел ОИК, проходившей в Каире с 31 июля по 5 августа 1990 года гласит: «А. Жизнь – это дар Божий, право на жизнь гарантировано каждому человеку. Люди, общества и государства обязаны обеспечить полную защиту этого права от любых посягательств на него, лишение жизни запрещено, кроме как по причинам, предписанным Шариатом – Законом Бога и путем к нему. В. Сохранение человеческой жизни в течение всего времени, отпущенного богом, - долг, предписанный Шариатом, – Законом Бога и путем к нему».

[2]

В-третьих, Ислам последовательно выступал против кровной мести у практиковавших это обычай народов, например, у народов Северного Кавказа – заменяя его выкупом за кровь и искупительной пожизненной заботой убийцы о семье убитого им человека, происходившей под общественным надзором.

В своем утверждении о гуманности и гуманизме учения Ислама мы исходим, во–первых, из значения термина «гуманизм» от лат. *humanus*, означающего человечность, а в более широком толковании – осмысленная и действенная гуманность человека, которая вместе с тем является образом жизни человека. Во–вторых, как следует из содержания суры 1 Аль-Фатиха, благо всего человечества и отдельного человека (по Исламу человек – наместник Бога на земле и рождается он безгрешным) находится в центре исламского мировоззрения, исламского образа жизни, ставящего целью вести человека и

человечество по пути служения Богу, а значит – благу человека и человечества в обоих мирах.

На основании вышеизложенного можно констатировать, что Ислам как религиозное учение и образ жизни вопреки утверждениям исламофобов нисколько не противоречит принципам построения гуманного общества, основными принципами которого являются взаимное уважение, единение и развитие на основе знания и нравственности.

Примечательно, что поиск и приобретение знания вменяется в обязанность мусульманин, о чем свидетельствуют аяты Корана и хадисы. В Коране прямо говорится о том, что Всевышний среди людей отдает предпочтение тем из них, которые обладают знанием, которое позволяет им стремиться познавать и использовать знания для понимания милостей Аллаха и следования правильному пути. В аяте 9, суры 39 говорится:

«Скажи: «Разве равны друг другу те,
которые знают и те, которые не знают?»
Поистине, внемлют наставлениям,
только обладающие разумом».

О высокой степени благоволения в Исламе к людям, ищущим и приобретающим знания, говорится и в следующем хадисе, одном из многих, утверждающих важность поиска и овладения знаниями. «Однажды Сафван бин Ассаль аль – Муради явился к Пророку, который находился в мечети, и сказал ему: «О, Посланник Аллаха, поистине, я пришел в поисках знания». В ответ ему Пророк, Мухаммад сказал: «Добро пожаловать, о ищущий знания! Поистине ангелы окружают ищущего знания своими крыльями, а потом становятся один на другого пока не достигают нижнего неба из любви к тому, к чему он стремится!» (Табарани; Ибн Хиббан; аль – Хаким) [3].

Здесь следует особо отметить, побуждение людей к знаниям в Исламе является пожизненным и поиски знания, предпринимаемые мусульманином не должны прекращаться до часа его смерти.

Согласно исламской концепции знания – оно представляет собой неиссякаемый источник и сокровищницу, которыми Всевышний одарил все человечество, всех своих подданных вне зависимости от того осознают они свою зависимость от Господа или нет. Но только к тем из людей благоволит Все-

вышней, которые стараются познать законы бытия им установленные, а познав используют знания во благо.

В истории исламской уммы имеются многочисленные примеры непрерывного движения мусульман на пути к новым знаниям, причем старания и усердие их увеличивалось пропорционально обретенным знаниям.

По мнению ряда ученых именно высокое значение знания в учении Ислама, стимулировало развитие образования и науки в молодом исламском обществе. Так, известный исследователь Абдол Хоейн Зарринкуб пишет «Огромное количество высших школ в исламских странах (в период расцвета исламской цивилизации) вызывает удивление в наше время, в век бурного развития машиностроения и техники, а также говорит о не имеющем аналогов энтузиазме» [4]. Энтузиазм, о котором пишет Хоссей Зарринкуб и рвение на пути к приобретению знаний, развития науки и образования охватили все слои исламского общества – от правителей до рядовых граждан. Известно, что многие из мусульманских правителей покровительствовали научным школам и отдельным ученым тем самым, поощряя интерес к исследованиям и способствуя быстрому развитию науки и доступного широким массам образования. Вместе с тем, несмотря на оказываемую помощь научным и образовательным учреждениям частными лицами и благотворительными учреждениями они – эти учреждения – оставались независимыми от своих опекунов [5].

Таким образом, мусульманское научное движение раннего средневековья, детерминированное стремлением мусульман к освоению и популяризации знаний как религиозного, так и светского порядка, а также наличием для этого предпосылок и необходимых условий приобрело разносторонний и массовый характер.

Отдельного рассмотрения заслуживает концепция Ислама об особой ответственности людей обладающих знаниями. По нашему мнению она тесно связана с другими концепциями Ислама – концепцией непрерывности образования (пожизненного поиска и приобретения знаний) и концепцией «Знание – Действие», утверждающей, что ценность имеют только те знания, которые работают, т. е. приносят пользу человеку и обществу. Взаимосвязанность этих концепций позволяет обозначить некоторые педагогические особенности философии воспитания в Исламе:

- личность, не стремящаяся к знаниям и совершенству чужда Исламу;

- приобретение знаний и нравственное самосовершенствование, саморазвитие (большой джихад) требуют от мусульманина непрерывных и систематических пожизненных усилий;

- приобретенные человеком знания, его духовный и физический потенциал обязаны работать на пользу общества;

- процессу приобретения и использования знаний должны сопутствовать совершенствование нравственных добродетелей, благодаря которым знания будут использоваться во благо.

Как видно из вышеизложенного в учении Ислама заключен громадный социально-педагогический потенциал, способный явиться одним из эффективных средств нравственного оздоровления и консолидации поликонфессионального общества. Каковой, например, является российское многонациональное и поликультурное общество, имеющее опыт многовекового взаимодействия и сотрудничества народов и конфессий, живущих в едином государстве.

В последние годы значительно возросла роль религии в жизни российского общества. Первые лица государства публично участвуют в отправлении религиозных обрядов, а средства массовой информации достаточно широко освещают жизнь всех основных конфессиональных сообществ страны. Политику правительства в сфере религии и налаживания межконфессиональных отношений все больше характеризуют выверенность, направленность на консолидацию граждан страны с учетом исторической многоконфессиональности и многонациональности государства. Появились социальные и социально-политические предпосылки для активного изучения воспитательного потенциала традиционных религий, которые еще только предстоит реализовать. Результаты подобных исследований в России, по нашему мнению, могут дать ценный материал для успешной организации межкультурного диалога и строительства позитивных межконфессиональных и межэтнических отношений в Европе, особенно в условиях роста вынужденной миграции мусульман.

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Educational-scientific work as a means of popularization of mathematical sciences

Abstract: The article presents the results of educational and scientific activities of the scientific laboratory of the KSU in the aspect of forming a stable interest of the studying youth of Karachay-Cherkessia to mathematical disciplines. Some priorities and features of work aimed at the development of mathematical education are shown.

Keywords: innovative activity in the additional education of students, methodology, result.

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Учебно-научная работа как средство популяризации математических наук

Аннотация: В статье представлены результаты учебно-научной деятельности научной лаборатории КЧГУ в аспекте формирования устойчивого интереса учащейся молодежи Карачаево-Черкесии к математическим дисциплинам. Показаны некоторые приоритеты и особенности работы, направленной на развитие математического просвещения.

Ключевые слова: инновационная активность в дополнительном образовании учащихся, методология, результат.

На современном этапе развития Российской Федерации, возникла острая необходимость преобразования характера экономики страны из экспортно-сырьевого к инновационному, высокотехнологичному, промышленно-производственному. Данная необходимость в свою очередь обусловила важность форсированного развития отечественной науки и передовых технологий, основывающихся, прежде всего, на математических науках, играющих системообразующую роль в образовании. Вместе с тем, существующие социально-экономические условия, постсоветской России, также актуализируют необходимость всеобщей математической грамотности населения, массового владения основными математическими понятиями, которые применимы во всех отраслях науки, культуры и социальной деятельности. Как отмечает академик А. Л. Семенов: «Выработанные в математике, осваиваемые человеком в его образовании важнейшие понятия: определения, утверждения, доказательства, алгоритма, измерения и модели сегодня являются универсальными, общекультурными, значимыми и применяемыми далеко за пределами математики. Необходимо всеобщее математическое просвещение, включающее насыщение среды нашего обитания и медийного пространства увлекательными образами, идеями и историческими примерами математики» [1]. В Концепции развития математического образования в Российской Федерации от 24 декабря 2013 года подчеркивается стратегическое значение математических наук. В Концепции в частности говорится – «Успех нашей страны в XXI веке, эффективность использования природных ресурсов, развитие экономики, обороноспособность, создание современных технологий зависят от уровня математической науки, математического образования и математической грамотности всего населения, от эффективного использования современных математических методов. Без высокого уровня математического образования невозможно выполнение поставленной задачи по созданию инновационной экономики, реализация долгосрочных целей и задач социально-экономического развития Российской Федерации...» [2]. В данной связи особое значение придается созданию условий для популяризации и повышения знаний педагогов и учащихся в области математических наук.

Математическое просвещение в большинстве республик – субъектов Северо-Кавказского федерального округа, в частности в Карачаево-Черкесии, на сегодняшний день остается на периферии деятельности учреждений образования. В ней никак не задействованы имеющиеся культурные и информаци-

онно-коммуникационные ресурсы. Отсутствуют специализированные математические учреждения, творческие объединения, школы, кружки. Остается невысокой и профессиональная мотивированность учителей общеобразовательных школ – одного из важных сегментов математического образования. Об этом, в частности, свидетельствуют данные исследований, проведенных в Карачаево-Черкесской Республике [3]. Следует отметить, что в последнее время наряду с все еще сохраняющимися проблемами в регионе наблюдается активизация усилий, направленных на развитие математического просвещения учащейся молодежи. Прежде всего, в форме летних школ. Так в 2012-2013 годах на базе Карачаево-Черкесского государственного университета была проведена международная математическая школа [4]. В течение последних семи лет успешно работает математическое направление научно-исследовательской школы Научной лаборатории педагогических и этнокультурных исследований в сфере образования КЧГУ.

Основной целью НИШ НЛПЭИСО является содействие развитию учебно-исследовательской и научно-исследовательской работы в учреждениях науки и образования Северо-Кавказского федерального округа. Работа математического направления НИШ НЛПЭИСО осуществляется среди учащихся, студентов, молодых ученых, работников образования и направлена на поддержку и повышение уровня математических знаний; развитие общей эрудиции; развитие творческого потенциала; развитие конструктивного общения и культуры научно-исследовательской деятельности.

Основными задачами НИШ является: популяризация математических знаний среди молодежи Республики; содействие развитию математического образования; повышение активности учащейся молодежи в области математических исследований; выявление, направление и развитие творческих и интеллектуальных способностей; содействие дальнейшей творческой, интеллектуальной активизации; развитие познавательных интересов, расширение кругозора в различных областях знания; совершенствование навыков учебно-научной и научно-исследовательской работы; стимулирование дальнейшего научного поиска; совершенствование программ и методик, направленных на развитие научно-исследовательской деятельности как средства повышения эффективности образовательного процесса; содействие профессиональной ориентации и самоопределению.

В своей работе НИШ руководствуется известными психолого-педагогическими принципами:

- учет возрастных особенностей;
- учет интересов и склонностей;
- сочетание научности и доступности и др.

Деятельность математического направления научно-исследовательской школы способствовала развитию конструктивных связей КЧГУ с учреждениями науки и образования СКФО в соответствии с одним из ведущих направлений деятельности университета - «Исследование состояния, тенденций и стратегий регионального образования». В целях максимальной адаптации программы математического направления работы НИШ к решению конкретных образовательных задач сотрудниками лаборатории был проведен анкетный опрос. В выборку которого вошли учащиеся средних общеобразовательных и средних специальных учебных заведений Республики, студенты и аспиранты КЧГУ в количестве 432 человек. Результаты исследования показали некоторую недооценку молодыми людьми значения математической науки и математических знаний в решении экономических, культурных и социальных проблем. Так, признают важность математических дисциплин и считают их изучение необходимым 75,9% школьников, 53,2 % студентов и 51,6 % аспирантов. Результаты опроса дают основание предположить, что оценка и понимание учащейся молодежью значения математических дисциплин находятся в прямой зависимости от уровня заинтересованности и компетентности школьных учителей, эффективности общего математического просвещения молодежи. Учитывая мнение респондентов организаторы НИШ приглашают к участию в ее работе представителей учащейся молодежи, проявляющих интерес к углубленному изучению математических дисциплин и регулярно участвующих в математических олимпиадах, конкурсах учебно-исследовательских и научно-исследовательских работ.

Одним эффективных инструментов выявления математически одаренной молодежи являются конкурсные мероприятия. Понимание этого обусловили проведение научной лабораторией ПЭИСО ежегодных конкурсов учебно-научных и научно-исследовательских работ учащихся, студентов и молодых ученых. Победители и наиболее мотивированные участники которых получают путевку в научно-исследовательскую школу лаборатории. Как показала практика, конкурсы и Школа способствуют выявлению и решению проблем связанных

с популяризацией и развитием учебно-научной и научно-исследовательской работы в системе образования, служат инструментом вовлечения в научный поиск и консолидации молодежи многонационального и многоконфессионального региона. Следует отметить также профориентационное и социально-экономическое значение проектов. Так учащимися научно-исследовательской школы дано математическое обоснование и составлен бизнес-план проекта: «Развитие народных художественных промыслов как альтернативная форма трудовой занятости населения КЧР». Первые результаты работы над проектом показывают наличие в регионе квалифицированных людских и достаточных материальных ресурсов для развития народных промыслов, которые могут служить одной из альтернативных форм трудовой занятости населения республики. Развитие народных промыслов будет способствовать повышению уровня трудовой занятости и благосостояния населения, развитию индустрии туристического сервиса на высокогорных курортах Домбай и Архыз. Понимание важности математических знаний и развития математических наук в деле социально-экономического и социально-культурного развития региона и страны в целом, формирующееся в процессе подобной проектной деятельности, служит средством популяризации математических наук и математического просвещения. Об этом свидетельствует стабильный качественный и количественный рост конкурсных работ, посвященных математической тематике.

Интенсификация работы учреждений образования, направленной на популяризацию математических наук, развитие математических знаний среди молодежи является одним из необходимых условий, преодоления современных тенденций по снижению уровня математического образования в России. Будет способствовать повышению математической образованности граждан, доступности и популярности математического образования, повышению профессионализма учителей-математиков, укреплению связи науки и производства. Одним из условий развития математического образования и математических наук является эффективная поддержка талантливой молодежи, преподавателей средних общеобразовательных и средних профессиональных учреждений, а также студентов, молодых ученых, профессорско-преподавательского состава и научных работников учреждений высшего образования. Вопрос поддержки научно-проектной деятельности в системе высшего образования региона на сегодняшний день остается проблемным. Например, нехватка в бюджете КЧР

средств на софинансирование грантов ведущих российских научных фондов лишила ученых республики возможности участия в региональных конкурсах российских научных фондов. Тем не менее, в Республике достаточно эффективно действует программа президентских грантов для молодых ученых. Имеется возможность для развития математических дисциплин в учреждениях дополнительного образования, и творческой работы энтузиастов развития математического образования.

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Teaching synonyms for formation of communicative competence

Abstract. The article is devoted to the role of lexical synonyms and synonymous constructions in teaching foreign students the Tatar language. The use of synonyms in oral and written speech is an indicator of language proficiency at a high level. However, even native speakers can not boast of this ability, especially foreign-speaking students. But despite many difficulties, it is possible to reach such a level of fluency. The article specifies the features of the lexical skills' formation necessary for the communicative competence. The analysis of exercises for the activation of synonyms in speech is given. Exercises of teaching aids for students of the Tatar language are studied. An attempt is made to determine the optimal types and types of exercises aimed at increasing the use of synonyms in Tatar speech.

Keywords: Synonyms, Tatar language, education, vocabulary, exercises, communicative activity.

Introduction

A high level of lexeme requires certain skills. According to the famous Russian methodologist Passov E.I., the formation of a lexical skill has several stages: 1) the perception of the word in speech; 2) awareness of the meaning of the word; 3) imitative use of the word in speech; 4) the ability to call subjects and objects of reality for communicative purposes; 5) the ability to combine a new word with the previously learned; 6) the use of the word on the basis of independent choice and its combination with other words in certain speech situations (Passov, 1989). Therefore, it is necessary to provide a set of exercises aimed at the practical application of the Tatar speech to achieve high level of proficiency of lexis.

In studies on the method of teaching the language as a non-native, lexical synonymy is considered “as a means of replenishing the stock of words” and “selecting synonyms is one of the ways to semantise new words to avoid using the native language of students in lessons” (Musaeva, 2006).

In accordance with the program requirements, the study of the Tatar language in the Russian school in the Republic of Tatarstan is aimed at forming communicative competence among students, as the ability and readiness to communicate in the second of the state languages. The study of the use of words-synonyms in the Tatar speech is included as a separate item in the programs on the Tatar language and literature for pupils of a comprehensive school with the Russian language of instruction (Hajdarova et.al., 2013). It should be noted that comprehension and memorization of Tatar words for foreign-speaking students is not difficult, but the correct use of it in their speech is not simply.

To form the skills of using a lexical unit in speech, learners should remember the necessary lexemes and choose the appropriate style, combining with others. The possession of the Tatar language ensures the ability and readiness of learners for communication in everyday life and leads them to mutual understanding in the multiethnic environment of the Republic of Tatarstan (Fathullova et.al., 2011).

The purpose of this research is to study the features of the lexical skills' formation and to determine the optimal types of exercises aimed at increasing the use of synonyms in Tatar speech. The object of the study are various types of exercises aimed at teaching the synonyms of the Tatar language. The examples are taken from teaching aids intended for students of higher education institutions and all those interested in the Tatar language (Nigmatullina, 2014).

Methodology. The main methods used in this study are a comparative method, an analytical method and a generalization method. Comparative analysis was used for the typological characteristics of Tatar language lexemes. A comparative analysis of the functioning of words in different speech structures was applied. Methods of structural linguistics, hermeneutic methods and frame analysis were used in describing the representation of culture in lexical units. The study of the material was carried out by the methods of synchronous analysis, which in the description of the active vocabulary of the Tatar language was supplemented by diachronic analysis.

Results. The Tatar language is the state language of the Republic of Tatarstan. The Tatar language is a compulsory academic discipline in all types of general education schools, secondary special educational institutions and universities of Tatarstan, including the Kazan Federal University. There are pedagogical achievements in teaching the Tatar language. There are also problems that need to be solved. Perfection of language education in modern conditions is one of the topical problems. It is necessary to raise the teaching of the Tatar language as a non-native language to a qualitatively new methodological level, to introduce modern teaching aids and to improve the social significance of the Tatar language.

Learners of the Tatar language begin to meet with lexical synonyms “jaxshi” and “ejbet” (well) at the first lessons. Learners use these lexical synonyms answering the question: “Xeller nichek?” (How are you?). Then these synonyms are activated based on the situation: “bik jaxshi - bik ejbet” (very good); “Ejbet tugel - jaxshi tugel” (badly); “Bik ejbet tugel - bik jaxshi tugel” (not very good); “Jaxshi ukij (well studying) - ejbet eshli (works well)”; “Ejbet eget (good guy) - jaxshi dus” (good friend), etc. At the initial stage of studying the Tatar language, the learners get acquainted with new words, drawing parallels with their native language and the languages they already own. Therefore, it is easier for learners to remember the Tatar “dew eni” and “dew eti” (grandmother and grandfather), which are calxed from other languages (for example, English grandmother and grandfather) by lexemes than ethnic lexemes of the Tatar language “ebi and babaj”. Each student talking about his family uses one or another variant of these words, thereby enriching his vocabulary. At the same time, learners study the “zur-dew” (large, large) lexemes, which are also part of the active vocabulary. Although the first exercises do not focus on memorizing synonyms. These exercises introduce the student to words that are similar in meaning and interchangeable.

Synonyms are words denoting the same phenomenon of reality. Synonyms distinguish in the called thing its different sides or characterize this thing from different points of view. That is why synonyms are not words that are absolutely identical to each other in terms of semantics and emotional and stylistic properties (Galimova et.al., 2016). These characteristics of synonyms learner of the Tatar language study from the following exercises in textbooks and teaching aids. For example:

1. Read the dialogue and make a similar dialogue.

- *Selam!*
- *Xejerle kon!*
- *Tanish bulijk, min – Ramile. E sin kem?*
- *Min – Kamile.*
- *Min bik shat, Kamile.*
- *Min de bik shat, Ramile.*
- *E bu **kiz** kem?*
- *Ul – Enise **tutash*** (Shcherbinina et.al., 2016).

2. Complete the dialogue.

- *Isenmesez, kererge **jarijmi**?*
- *..., kererge **momkin**. Rexim itegez!* (Galimova et.al., 2016).

From these examples, you can understand that “kiz” (girl) and “tutash” (girl), as well as “jarij” (can) and “momkin” (possible, perhaps) are words with similar meanings, but these words are not interchangeable in all situations. You can ask: “E bu tutash kem?” (Who is this girl?), but you can not answer: “Ul - Enise kiz” (This is Anisa girl). In this case, the order of words and the syntactic function of the word “kiz” in the sentence should change: “Ul kiz – Enise” (This girl is Anisa) (Shcherbinina et.al., 2016). In the second example, the semantic differences when replacing the words “jarij” and “momkin” are not particularly noticeable, but they differ significantly when used in negative form: “kererge jaramij” - can not be entered, and “kererge momkin tugel” - it is impossible to enter, where the modality increases (Galimova et.al., 2016).

Conclusions. The analysis of teaching aids to identify exercises for consolidation synonyms showed the following:

1. In the teaching aids there are the exercises for identifying synonyms in the text. For example, in the text about holidays in Russia, learners meet with absolute synonyms: “kotlarga - tebrik iterge” (congratulate) and with contextual synonyms: “bejrem iterge” (celebrate) – “kuhel acharga” (have fun) – “shatlanirga” (rejoice), etc. (Shcherbinina et.al., 2016).

2. There are exercises for the selection of known words of synonyms from the proposed words. For example: Match the words:

Ajirucha	jerdem iterge
Tatu	annari
Bulishirga	bik

Sohihhah	ukirga
Belem alirga	boten
Barlik	birede
Jaxshi	Dus
Monda	ejbet. (Nigmatullina, 2014)

3. There are many exercises on the selection of synonyms for these words. For example: Write synonyms for words: Guzellek (beauty) -, sajrij (to sing) -, kir (field) -, bulisha (to help) -, koj (melody) -, maturlana (to paint) -, suik (cold) - (Nigmatullina, 2014) and others.

From the methodological point of view, such exercises for finding, revealing similarities and differences in the meanings of words allow to cover many significant aspects of the development of the Tatar speech of Russian-speaking learners. Exercises of teaching aids include improving the skills of usage, introducing synonyms and syntagmatic links of words. Such types of tasks as question-answer, comparison of two or more synonyms contribute to the development of spontaneous use of synonyms in speech. This approach gives a work with lexical synonyms a communicative orientation, which is especially important in teaching the language as a non-native language.

However, it should be noted that many exercises are of the same type. It is possible to diversify these exercises, drawing attention to the activity of using Tatar words and borrowed words in the Tatar language (jarij-momkin (possible, perhaps), emma-lekin (but)); composite and derived words formed from one basis (dus bulu - duslashu (to make friends), omet it-ometlenu (hope)). Many pairs of words in the Tatar language are formed with the help of words-synonyms: "savit-saba" (dishes), "xatin-kiz" (woman), "isen-sau" (healthy), "sau-selamet" (healthy), "ir-eget" (man). These words are part of the active vocabulary of the Tatar language. Exercises for its activation would be useful. In addition, in textbooks only a small number of texts from classical literature were used, in which it would be possible to find a sufficient number of examples for the use of synonyms in Tatar poetry and prose, folklore texts (Galimova et.al., 2016) and also phraseological synonyms (Fathullova et.al., 2012). Examples from literature texts would give an idea of the expressive-emotional and stylistic coloring of synonym words, about their ability to combine with other lexemes in speech.

Such exercises would be useful for students. It can give a more complete picture of lexical synonymy. Learners of the Tatar language should be able to use spoken language means of different styles and to improve the language design of any text.

The systematization of words and exercises for the correct use of the lexemes facilitates the process of memorizing, assimilating concepts and enriches the vocabulary of learner. Knowledge of the synonymous means of language is a necessary condition for a person's speech culture.

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Professional culture of future teachers as a factor of formation of readiness for professional activity

Abstract. The authors cover various aspects of the problem of the personality-oriented approach in the professional activity of a teacher. The article presents different views on the problem of professional culture of future teachers as a factor of readiness for professional activity. The ways of forming professional culture, which many authors refer to as "professionalism" are suggested. The emphasis is placed on the fact that in the context of ensuring the conditions for successful functioning of the system of personality-oriented education of students of higher educational institutions, the definition of the final result of education is not the actual student's learning (acquisition of knowledge, abilities, skills), but the formation of a personality - original, unique, creative, who has one's own goals and values in life and is ready for the professional activity. The conditions of effective and full functioning of the personality-oriented approach in the study of students of higher educational institutions as an integral process of formation of their individuality, self-determination in life, the development of talents, mental and physical abilities, education of professional culture are determined in the article.

Keywords: personality-oriented learning; humanization of the educational process; readiness for the professional activity; professional culture.

The statement of problem. The task of training highly-educated specialists who are capable of self-improvement and self-realization, ready to acquire and apply knowledge in practice, taking creative and non-standard decisions has arisen for the high school. The solution to this difficult task is implemented through the content search, forms, methods, models and learning technologies that provide wide opportunities for comprehensive, harmonious development and self-realization of the individual. According to this, the problem of determining the conditions for effective and full functioning of the personality-oriented approach in the study of students of

higher educational institutions becomes an integral process of the formation of their individuality, life self-determination, the development of talents, mental and physical abilities, the upbringing of high moral qualities [Horbatiuk, 2014].

A solution to the issue of a personality-oriented approach can help to increase the effectiveness of learning. Due to the personality-oriented approach to learning by the subjects of the educational process is the personality of the teacher and the student's personality. It is their interrelations, communication and cooperation that depends on the learning process progress. The level of teaching foreign languages depends mainly on the teacher. Teacher's competencies are more extensive than mere knowledge transfer. These include: the formation of the ability to learn; enhancing students' confidence in their strengths, self-esteem, motivation; increasing interest in learning; organization of a favorable educational atmosphere. The teacher acts as a mediator between the students, the teaching material and the learning process. For the effective implementation of this role, he must be ready to perform the functions of a counselor, assistant, consultant, communicator, partner in a joint decision of educational tasks. However, the central figure in the educational process is a student. He is responsible for all the results of the academic work, as well as knowledge, skills and abilities [Yakimanskaia]. Nowadays, the scientific and pedagogical community is increasingly aware of the need to reorient the linguodidactics toward a personality-oriented approach to the teaching of pupils and students, of the naturally relevant pedagogical process as the development of the best intellectual capacities of the young person. This, in its turn, implies the maintenance of the unity of independence and student's amateur activities with pedagogical supervision and taking into account the processes of self-development and self-realization of the personality during the pedagogical activity.

Research analysis. In the scientific literature, various aspects of the problem of the personality-oriented approach are highlighted: the issue of equality of positions between the educator and the pupil V. Sukhomlynskyi, K. Ushynskyi; the revelation of the "paradigm formula" of the modern humanistic approach (S.I. Podmazin, et al.); the formation of a teacher's creative personality (V.I. Andreeva, N.V. Kichuk, V.O. Moliako); emphasizing the means of the personality-oriented education and the upbringing of pupils and students (I.D. Beh, O.V. Bondarevska, A.S. Padalka, et al.). [Labenko, 2012].

Presentation of main material. In the context of ensuring the conditions for the successful functioning of the system of the personality - oriented training of students of higher institutions, we find it particularly relevant to determine the ultimate result of education not only the actual learning of students as the mastery of their knowledge, skills, abilities but the formation of a personality - distinctive, unique, creative, having its own goals and values in life. The main factor in achieving the result in this process is the active life position of the student himself, the degree of implementation of his cognitive activity. Indeed, as I. Yakimanskaia accurately observes, "it is possible to teach everything and anyone. But to learn in order to be educated, everyone must study individually by means of organizing his own activities based on his personal needs, interests, aspirations, using personally developed methods of educational work and being guided by a personal attitude towards it" [Yakimanskaia, 2000]. Therefore, as a top priority in the list of conditions that ensure successful functioning of the system of the personality-oriented education of students of higher educational institutions, based on the humanistic education of a creative person, we determine the teacher's readiness for such activity. It should be based on democratic principles and cooperation.

The task of the teacher is to organize the learning process in such a way as to increase students' interest in knowledge, to increase the need for their full and deep assimilation, to develop the ownership of the work, so that each pupil takes the most active part in training activity, works hard so that the individual work promoted more profound mastering of the curriculum material, to develop strong skills and knowledge, to develop diverse abilities of pupils. The individualization of learning encourages successful solving of the tasks that the teacher was set. E. highlights the Rabunskiy, following goals of individualization of the learning process: 1) the development and use of individual qualities of pupil's personality; 2) the development and use of cognitive interests of each pupil; 3) the development and use of each pupil's intellectual abilities and talents; 4) optimal development of learning abilities in each pupil; 5) preparation for the conscious choice of profession by the pupil; 6) the development of each pupil's skills in individual learning activities [Rubanskiy, 1975].

The purpose of the personality-oriented learning is: 1) to determine the life experience of each student, the level of intelligence, cognitive abilities, interests, qualitative characteristics that must first be identified, and then make agree with the content of education and develop in the educational process; 2) to form positive

motivation of students for cognitive activity, the need for self-knowledge, self-actualization and self-improvement within the sociocultural and moral values of the nation; 3) to equip the students with the mechanisms of adaptation, self-regulation, self-defense, self-education necessary for the formation of a modern, up-to-date person capable of constructive dialogue with other people, nature, culture and civilization in general [Horbatiuk, 2014].

The development of the modern Ukrainian state has put forward public request for education of a creative person who, unlike a person-performer, can independently think, generate original ideas, make bold, non-standard decisions. An important assignment of modern national education is the optimization of the educational process in higher educational institutions, since the basis of future level of national intellectuals are created within them. The prospect of the development of national state largely depends on the cultural and educational level of its citizens, on the system of values which will dominate in the ideological orientation of the younger generation. The solution of this goal involves the need to focus on the formation and development of a self-sufficient personality of each student with a high level of the professional culture. For a modern post-industrial information society, a professionally educated and harmoniously developed personality is needed, who is capable of: adapting in the conditions of real life in a complex dynamic world; taking responsibility for one's decisions under the freedom of choice; navigating and acting in a mobile and multidimensional society; using one's knowledge for the benefit of oneself and others [Plakhotnik, 2004].

Education and culture are two sides of the genetically unified process of anthropo- and sociogenesis. Their more or less harmonious interaction ensures the production, replication, transferring, assimilation and acquisition of knowledge and values. Culture is a way and form of human existence, historical measure and "limit" of the human way of life, its dominant image. It can be represented as a person's accumulated experience of activities necessary for the reproduction of this activity through the formation (training) of a person. The core of general culture of an individual is education and upbringing in their harmonious unity. An important component of harmonious development of a personality is the formed aesthetic culture, which is based on one's abilities, interests, striving for the beautiful and the ability to implement them. Any sphere of human life can be represented in relation with its cultural significance and values. Culture includes the substantive results of

human activity, and knowledge realized in human activity, skills and abilities, the level of intellectual, moral and aesthetic development, world outlook, ways and forms of communication. Culture expresses the depth and immensity of the human being.

As a methodological basis of our study, there is a number of works devoted to the professional culture of future specialists. These are the works of V. Anokhin, P. Ambarova, M. Filonenko, V. Kochergin, N. Krylova, A. Agarkova, V. Pozniakova, A. Smolyka, N. Mikolayenko and others. They reveal different views on the problem of the structure of the professional culture, attempts are made to consider the main stages of professional competence, approaches to the formation of professional culture are offered. The professional culture of many authors is closely connected with the concept of "professional competence", the essence of which is considered in the works of I. Butenko, E. Yermolaiev, V. Miheiev, S. Druzhilov, O. Kolechko, and others, and the ways of formation - in works of C. Isaienko, N. Krylova, I. Kuznetsova, O. Ponomarenko and others. Among the meanings of the concept of "culture", we adopted the definition of N. Krylova as a basis, who believes that "culture is the number of spiritual achievements and the memory of mankind; creative expression of people (the result and process of creativity); a set of common signs and symbols; the system of norms and patterns of behavior inherent in this society; the basis of social behavior, inherited from previous generations (language, theoretical ideas, cultural-organized activities); lifestyle and activities, as well as their context; a set of material and spiritual values; the density of experience; achievement of personality" [Krylova, 1990].

In the studies of such scientists as V. Davydovich, Y. Zhdanov, M. Kagan, V. Ignatov we find the confirmation that the core of the theory of culture is activity. The categories "culture" and "activity" are historically interdependent. It is possible to allocate special cultural function in the activity, implementing it the person creates oneself, enriches oneself and creates conditions not only for his life, but also for the subsequent transformation in general, in particular the cultural environment.

The problem of occupations and professional skills is a special place in the bright and diverse world of human culture, since culture as a human activity in all spheres of being and consciousness can exist and develop only when a person – a subject of culture – acquires one of these activities, that is, a profession and thanks to it the acquired knowledge and skills can change the world around us, nature and ourselves.

Profession and culture are closely interacting with each other and they can not exist without each other. A profession, combined with universal culture, generates such social phenomena as "professional culture" and combines both the field of human labor, activities and the quality of this activity, which ultimately results in culture as a unique phenomenon of all human history, of all human being. It should be noted that the origins of professionalism, professional culture in general should be sought in the work of people in the social division of labor. It was the social division of labor and the emergence of occupations that became objective incentives for the formation and development of culture as a "second nature" of man [Ignatov, 2000].

The term "professional culture" is a category that characterizes social and professional qualities of a specialist, taking into account the specifics of one's professional activity, the degree of mastering the achievements of scientific, technical and social progress. Structural components of professional culture are ethical, aesthetic, methodological, professional-psychological, project-making, environmental, legal, physical culture.

In the scientific circle, the term "professional culture" was introduced by V. Pidmarkov, which in the content of professional culture included: a) special knowledge of the type of activity, constituting the content of a profession; b) knowledge of the production situation, organized links and their performers.

S. Druzhylov understands professional culture as a specific culture of the professional community and as a culture representative of the profession. "The first includes ways of organizing and developing professional activities presented in products of material and spiritual work, in the system of professional values, professional norms and beliefs, professional traditions, which determine the attitude of specialists to the subjects and objects of their activities. The second one is considered as a result of the person's assimilation of the main elements of professional culture of the community, as a result of professional socialization and professional identification of the individual" [Druzhylov, 2000].

The basis of professional culture is general culture of an individual, which includes the most important amendments of culture. The professional culture of a specialist, which is a specific environment of a professional community, includes together with standards of professionalism, competence and skill, a set of value-normative and moral representations that are responsible for regulating the relationships of people in the process of their professional activity. V. Slaktionin

points out that professional self-realization of a specialist, which is the result of "self in the profession" search, the confirmation of a professional image, the individual style of professional activity, one's own professional role, the image of "I" becomes important in the context of professional self-improvement, self-education, self-upbringing, the disclosure and realization of one's creative potential, the definition and achievement of professional perspectives, the establishment of new professional goals [Slastenin, 2002]. Traditionally, professional culture is understood as a set of theoretical knowledge and practical skills associated with a particular type of work. With the emergence of professional culture, there are specific institutes for the development, preservation and dissemination of culture. Particularly in this regard a system of vocational education should be distinguished, which is a social form of the existence of cultural processes of education and upbringing.

Conclusion. Thus, professional culture is a significant factor in the professional activity of teachers and representatives of other socio-occupational professions. The high level of professional culture of a teacher is characterized by a developed readiness to solve professional problems, that is, an advanced professional thinking and consciousness.

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Empirical studies of socio-psychological conditions of formation of ideas about the spiritual ideal in primary school children

Abstract: The article describes the organization and methods of empirical research. Author obtained results based on age and gender specifics and levels of formation of ideas about the spiritual ideal of primary school children. The factors influencing formation of the mentioned and socio-psychological conditions of their formation are revealed.

Keywords: formation, representation, spiritual ideal, primary school children, factors of influence, social and psychological conditions.

Formulation of the problem. The problem of versatile influence on the formation of ideas about the spiritual ideal of the individual is determined by the decrease of spirituality indicators, the strengthening of selfish and materialistic tendencies in the personal development of young people, a certain deformation of their moral values, the ideals of Beauty and Good, the lack of examples for identification and their imitation, which leads to distortion in their ideas about the spiritual ideal.

Analysis of recent research and publications. Modern scientists have substantiated a number of theoretical positions on the problem of the formation of spiritual values and ideals of personality. Thus, at a younger school age, the development of moral and spiritual ideals is associated with ethical knowledge and methods of their implementation in social behavior (N.A. Pobirchenko) [6]. Researchers of the problem of moral and spiritual formation of the child (I.S. Bulah,

O.V. Skrypchenko, etc.) found that in this age the liberalization of value representations has place, the change of moral ideals, the transfer of a moral sample from parents, teachers to the reference group [4; 7]. Scientists (A. Bandura, R. Walters) believe that it is possible to regulate and direct the behavior of the child, giving him the opportunity to follow the authoritative samples [1; 2]. According to researchers (O.O. Bodalov, V.S. Mukhina), the child, as the most sensible part of society, is unprotected from a variety of negative influences [3; 5].

Despite the presence of a certain number of studies on this issue, the complex study of the conditions for the formation of ideas about the spiritual ideal in primary school children was not the subject of a special study, while in child psychology it was stated that the first ideas about the spiritual ideals and values forms in childhood that are increasing with the age.

Formulating the purpose of the article. The purpose of the article is the empirical discovery of socio-psychological conditions for the formation of ideas about the spiritual ideal for children of primary school age.

Presentation of the main research material. The empirical study included two stages: 1) the study of the basic indicators of the formation and representations of the spiritual ideal in primary school children; 2) study of socio-psychological conditions and their influence on the formation of ideas about the spiritual ideal of pupils.

The experiment was attended by 180 primary school pupils (108 girls and 72 boys) aged 7-8 (52), 9 (66) and 10-11 years old (62), 80 parents and 20 teachers. During the study, 720 sessions of observations were conducted, 1080 children's responses were received in the projective method "Fairy World", which was implemented in the conversation, analyzed 540 children's drawings by the projective method "Study of the characteristics of the child identification", 80 parents (880 responses) and 20 teachers (220 responses).

The study of age and gender specifics and the levels of formation of ideas about the spiritual ideal in children of the primary school age was based on the criteria: value-positive attitude to the ideals of Beauty and Good; Identification with the bearers of these ideals; Imitation of the behavior of people and literary characters; understanding of their own ideas about the spiritual ideal and their indicators.

The empirical study of the basic indicators of the formation and representations of the spiritual ideal in primary school pupils showed that children ideas about spiritual ideals have their own peculiarities. So, the older the child gets, the better it delineates manifestations of beauty and deformity (pupils of class: 4th – 79.0%, 3rd – 60.6%, 2nd – 59.6%), good and bad (evil) deeds of people (pupils of classes: 4th – 83.9%, 3rd – 62.1%, 2nd – 51.9%) in real life, literary and artistic works. Girls (18.5%) are more likely to have a desire for such distinction than boys (16.7%) are. Valuable attitude to nature is observed in those pupils of classes 2-4, teachers and parents who are the most careful attitude to the surrounding world. Limited value attitude to nature is more often shown by boys (55.5% of situations), compared with girls (29.6%). Among the motives for choosing characters to follow, boys point to strength and courage, while girls are more attracted to their beauty, gentleness and tenderness.

An analysis of children's drawings and conversations in their content showed that the choice of the spiritual ideal of children depends on their needs and interests. Almost a third of children (25.6%) are mainly based on spiritual and ethical motives - to be useful to people, the desire to follow the ideal image. The overwhelming majority of the subjects (34.4%) related their reasons for choosing the ideal with the pleasure of children's inclinations. The smallest number of children, 16.1%, chose ideals based on their aesthetic priorities and preferences. In pictures on the topic "The World of Kindness and Beauty", all children depicted nature. 34.4% of children depicted in nature people: themselves (18.3%), friends and other children (15.0%), parents (8.3%), teachers (7.2%), acquaintances and strangers (5.5%). At the same time, 23.9% of children associated the stories of their drawings with the desire to obtain material wealth and personal recognition. Pupils of the second grade (65.3%) are more likely to direct themselves to high-spiritual individuals (mother, father, teacher, other adults), compared with older children (3rd – 47.0%, and 4th – 41.9%). Almost half of the respondents (40.0%) come to the aid only at the request or encouragement of an adult, indifferently to the grief and joy of others. Girls often have a constant (23.1%) and a partial (45.4%) desire for manifestations of goodness and assistance to other people, as compared to boys (6.9% and 40.3%). Pupils of the 2nd (82.6%) and 3rd (74.2%) classes are more likely to follow the behavior of adults who are the bearers of spiritual ideals, compared with pupils of the 4th grade (59.7%). Most of all, in their behavior, children inherit well-known people, pop stars

(30.6%) and favorite cartoon heroes (20.5%). Girls (16.7%), to a greater extent imitate the ideals of the beauty of their mothers, which, in turn, shape the tastes and aesthetic preferences of the child. Boys (13.9%) seek to imitate the military. In addition, primary school children (13.9% girls and 12.5% boys) follow the behavior of teachers. It should be noted that younger children (pupils of class: 2nd – 78.8% and 3rd – 71.3%) more actively imitate the behavior of other children (peers, reputable friends from the yard, small cinema actors, children's literary characters) with the manifestations of spiritual ideals, feel the need for contact with friends, show care and attention (10.5%) to them, try to bring joy to each other (22.2%), compared with older pupils (class 4 – 56.4%). Leading in the choice of comrades, both boys and girls, is the ideal of beauty.

Anxious is the fact that the overwhelming majority of primary school pupils identify themselves with adults, children, literary characters (heroes of films, cartoons, artistic works), who are the bearers of non-spiritual ideals and individualistic values. Explaining their choice, they distinguish material wealth from them. The desire to imitate its perfect image, in most, depended on the concept of "beneficial – not beneficial", indicating the presence of children egocentrism and the emergence of impotence.

In general, pupils of the 2nd-3rd classes often follow the behavior of literary fairy-tale characters (heroes of feature films and animations), and pupils of the 4th class prefer to imitate the behavior of real people (adults and children). Girls have a better understanding of the perfect image (67.6%), compared to boys (59.7%).

Based on the generalization results of this experiment, the levels of formation of representations of the spiritual ideal in the younger school age are distinguished and characterized: high (15.5%); average (48.9%); low (35.6%). The analysis of the summary data, made it possible to distinguish quantitative differences in representations of the spiritual ideal at its various levels of formation, depending on the age and gender of children. The obtained data indicate a certain positive dynamics of levels from the second to the fourth grade (an increase in the number of children with high and average levels of formation of ideas about the spiritual ideal), however, a significant percentage of pupils of all classes with a low level makes one to think and necessitates the search for ways, conditions, methods and means of increasing the effectiveness of the process of forming ideas about the spiritual ideal of primary school children.

At the next stage of empirical research, to study the social conditions for the formation of ideas about the spiritual ideal at primary school children, we conducted a questionnaire survey of parents and teachers. The data obtained during the questionnaire and interviews made it possible to find out the spiritual closeness, the unity of the child with the parents and teachers, the influence on formed the ideals of the child's favorite films, cartoons, video games, books, magazines, works of art, communication with nature, visits to temples and churches within the family and school. The statistical analysis of the responses of 80 parents and 20 teachers testifies that teachers' awareness of children is higher than that of parents. According to the results of the questionnaire, parents are referred to as influencing factors of the formation of spiritual ideal in children: 1) the media – foreign (88.8%) and domestic films and cartoons (11.2%), computer games (81.2%), music, songs (80.0%), radio information (33.7%), books, literary works (17.5%), magazines, newspapers (16.2%); 2) artistic and aesthetic influence - communication with nature (50.0%), visiting theaters and concerts (35.0%), museums (31.2%), temples, churches (28.7%), exhibition halls (27.5%), amateur performances (5.0%); 3) peculiarities of relationships with others – familiar people: parents, teachers, friends, peers (47.5%); unfamiliar adults: stars of cinema, sports, sports (18.75%). Teachers believe that the idea of a spiritual ideal in primary school pupils is largely shaped by artistic and aesthetic influences: communicating with nature (90.0%), exhibition halls (35.0%), amateur performances (30.0%), visits to theaters and concerts (25.0%), museums (20.0%), temples, churches (5.0%). Somewhat less influence of factors belongs to the mass media: books, literary works (75.0%); foreign (65.0%) and domestic (35.0%) films, cartoons; music, songs (55.0%); computer games (45.0%); radio information (20.0%); magazines, newspapers (10.0%) and peculiarities of relations with others: strangers – stars of cinema, stage music, sports (25.0%); familiar people – parents, teachers, friends, peers (20.0%).

The conducted quantitative and qualitative analysis of the obtained results made it possible to distinguish three main types of influence of factors on the formation of ideas of primary school children about the spiritual ideal in the family and school: positive, partially positive, negative. Thus, in the smallest number of families and schools (16.0%), there is a positive influence of the factors on the formation of ideas about the spiritual ideal of children, where parents and teachers motivate children, care about expanding their knowledge and forming ideas about the spiritual

ideal, influencing their cognitive component. A slightly larger number of families and schools (31.0%) show a partially positive influence of factors, which impedes the formation of a high, adequate level of representations. Spiritual ideals of this part of the children are somewhat blurred and fuzzy; they are poorly oriented in their lives. The majority of families and schools (53.0%) were the most likely to find a negative influence of the revealed factors on the formation of ideas about the spiritual ideal of children, which deforms their ideas and causes disorientation of values.

Conclusions and further perspectives. The formation of ideas about the spiritual ideal of children is negatively affected by: conflicts in relations with others; the desire of children to obtain material wealth and personal recognition; low awareness of adults about spiritual ideals, factors affecting this formation, the failure of their own ideas about the spiritual ideal. And the fact that younger pupils almost do not read fiction, which broadens their worldview and assists in the assimilation of universal and spiritual values, instead, give preference to contemporary animation products, which depict ambiguous, distorted images of heroes which child cannot understand without a help from an adult, however, often mimics.

It is empirically confirmed that social conditions for the formation of ideas about the spiritual ideal for children of primary school age are: the peculiarities of relationships with others (parents, teachers, friends, peers, acquaintances and strangers); Influence of mass media (TV products, computer network, radio information, books, literary works, magazines, newspapers); artistic aesthetic influence (works of art and theater, communication with nature, aesthetic priorities and preferences, artistic amateur activities). Psychological conditions are individual-psychological properties: child's desire, needs, interests, peculiarities of imagination, conflict experiences.

The study does not exhaust all aspects of the problem under investigation. The further prospect of studying is to develop a model of psychological counseling for parents, class leaders, caregivers of groups of prolonged days on the problems of forming ideas about the spiritual ideal of children and ways of their correction, etc.

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Practical indicators of the democratic press fact in the mass media system of modern Azerbaijan

Abstract: The fact of independence of Azerbaijan provided formation and development of national media system and the democratic press in this system as a whole. The article analyzes the press agencies, especially newspapers showing themselves in Azerbaijan within the framework of operating principles of the democratic press. In this case the theoretical grounds of the factors isolating a type of democratic newspaper are given and special attention is paid to the application of these theoretical models - for example, social responsibility concept on a national basis. Scientific and theoretical grounds of the article are based on a special care taken by the modern Azerbaijani state to the democratic press and performance indicators of newspaper types formed as a result of this care. The operation of the "525-ci qəzet" ("525th newspaper") and "Kaspi" ("Caspi") newspapers involved in analysis in the article has been generalized and these press agencies have been presented as the typical factors of the democratic press.

Keywords: independence, democratic press, concept, censorship, Azerbaijanism.

Azerbaijani press has undergone very important stages during the years of independence and reached modern level referring to the modern world practice, especially, the practice of democratic countries. First of all, this level can be measured by the democratic nature of our national press. Today's face of Azerbaijani media environment is measured by the press system of democratic nature. There are tens of newspapers, several TV channels and radio organizations which operate in the country that on the one hand, they are distinguished by an

independent management system and on the other hand, by democratic principles arising from this independence. Such type of media system hasn't arisen all of a sudden. Even in the first years of independence, one of researchers showed that "discussions and exchange of views on press do not stop after the state censorship was cancelled and the assignment of control function was given to the media's internal censor of beliefs and spirituality" [3, p.212]. We can speak for hours about the fact that National Leader of Azerbaijani people, Heydar Aliyev accepted democratic media as a priority policy of our state and His care and attention for the formation of mass media legislation for this. It should be once more noted that even in the first decade of the independence of Azerbaijan, President Heydar Aliyev prepared the concept of democratic media. H.Aliyev always supported journalists to realize this concept. In July 1999, our National Leader, in His congratulatory letter addressed to "Press workers of the Republic of Azerbaijan" said: "Azerbaijani press has always been a herald of great social ideas throughout its rich and glorious history and rendered exclusive services in strengthening our people's desire for freedom and independence, spiritual progress, preservation of high moral values and especially, in the formation of democratic rules" [1, p. 239].

As can be clearly seen, here, a number services of press, as well as, its role in instilling democratic values to the society have been highly appreciated. After these opinions, our National Leader, stating that press has further developed by Azerbaijan's gaining independence, said: "Media, which is benefitted from national and universal values has obtained great opportunities to realize its higher goals after our republic gained its state independence. The protection of press, freedom of speech and expression is followed without returning to political pluralism in the Republic of Azerbaijan that has chosen the path of democratic, legal and secular state building" [1, p. 239]. We should add that all of these emerged as a result of Heydar Aliyev's development strategy of democratic media in independent Azerbaijan. H.Aliyev expressed in His theoretical views on the media how to realize this concept with its full meaning: "Media is a powerful tool giving impetus to the political development and deepening democracy. Today, the main task is to effectively use its broad opportunities in national state building, restoration of democratic values, formation of political and civil society, implementation of reforms and people's spiritual purification" [1, p. 239]. H.Aliyev determined the most important and classical duties of media in this way: "Media should be the mirror of life and the

herald of truth, it should call and mobilize people in the fight for high ideals" [1, p. 239]. Azerbaijani press developed as an entire system around this theoretical concept and these general challenges; mainly, its democratic branch has emerged and began to play a key role in the community life.

Towards the end of the mid - 1990s, an entire system containing a number of functional branches of Azerbaijani press was formed. The people taking part in the process of a new state building all together understood that there cannot be a democratic state without free and democratic press. The examples of democratic press emerging from the end of 1980s appeared as a special force in 1990s. Democratic press "confirmed its place in the system of media" [10, p. 5]. Therefore, political and legal basis were formed for the emergence of such type of press in the country. Since this period, newspapers that showed their types even in their names emerged: "Opposition", "Independent newspaper", "Democratic Azerbaijan" etc. [10, p. 144]. However, not all of the newspapers which there is the word "democratic" even in their names can be considered as democratic. Democratic nature must show itself in the information policy of the newspaper. Such newspapers include in the system of "independent newspapers". Such type of newspapers serve neither government, nor party, nor group interests. They only address to public interest. Among such newspapers, "newspaper 525", "Kaspi", "Express", "East", "Justice" etc. can be shown. These independent newspapers act as the main indicators of democratic media. Regarding this, first of all, we would like to focus on the activity principles of "newspaper 525".

"Newspaper 525" was founded in 1992. Founder and editor in chief is Rashad Majid. Rashad Majid is a journalist by profession. He graduated from the Faculty of Journalism at Baku State University. Therefore, he is known as a professional writer – journalist who has formed not only the technology of establishment of newspaper, but also its auditorium, public interest circle and information policy. "Newspaper 525" gathered real professionals who are mostly and perhaps, unambiguously journalists around it from the first times of its establishment. Today, Yashar Aliyev, Yusif Rzayev, Sevinj Murvatgizi, Kamil Hamzaoghlu, and Basdi Alibayli who are famous as professional writers – journalists both in medial environment, and also in artistic and public environment of Azerbaijan have raised the level of this newspaper to the highest peak. And also, this level has been seen from the first times of the establishment of newspaper. "Newspaper 525" was among three highly rated

newspapers in the expert survey conducted by «New Generation» Azerbaijan Journalist Union for 1997 – 1998 [10, p. 123]. At that time, the circulation of newspaper was about ten thousand copies. Now, about 30 journalists work at the editorial office. Tens of journalists who acquired professionalism at this editorial office now function at various prestigious media organizations, as well as, TV and radio channels in the republic.

“Newspaper 525” has involved a number of creative intellectuals from our republic, as well as, Turkey, Central Asia, Russia in cooperation with its democratic and independent activity. Azerbaijan’s deceased writers and poets such as Ismayil Shikhli, Famil Mehdi, Bakhtiyar Vahabzade, Mammad Araz, Yashar Garayev, Isi Malikzadeh ... considered this newspaper as the most important tribune for saying a word to the people. Today, Azerbaijan’s public figures, government officials, writers and poets, and philologist professors such as Ali Hasanov, Anar, Elchin, Elmira Akhundova, Ramiz Rovshan, Vagif Yusifli, Jahangir Mammadli, Agil Abbas, Shamil Valiyev, Alkhan Mammadov ... maintain a constant creativity relationship with this newspaper and mainly, publish their writings in this newspaper.

It should be especially noted that an independent and democratic nature of “newspaper 525” created a special condition for the newspaper to have a wide and diverse range of the author's contingent. Therefore, prominent publicist, member of Parliament (Milli Majlis), Elmira Akhundova says in one of her writings about this newspaper: “It is already a certain time that “newspaper 525” has included in my daily reading even without perceiving this myself ... from its establishment, though this newspaper was considered as a political and social publication, its artistic and publicistic side is especially interesting... According to the representatives of politicized journalism, the readers of literature should be avoided from the newspaper. However, in contrary: Saturday edition which almost all pages are available for poetry, prose and journalism is more demanding in the intellectual circles as never before. This quality of the newspaper is also in its democratic nature” [2, p. 77].

Representatives of modern science and literary creativity such as Anar, Elchin, B.Vahabzade, J.Mammadli etc. expressed many opinions about the nature and democratic spirit of “newspaper 525”. And also, newspaper’s function of enlightenment is expressed in many of these opinions. It is obvious that “as in other fields of the life, there are events that affect the development level and interests of

the people as a whole, visible and invisible sides in the fields of philosophy, science and education. There is a great need for revealing one's own and essences, and promoting necessary knowledge for our life to be more complete, more democratic, more inclusive. This is a mission of enlightenment" [4, p. 3]. "Newspaper 525" can realize the democratic nature of this "mission".

We can focus on newspaper "Kaspi", as one of the indicators of activity of democratic press. As the activity of "Kaspi" proves that the independence of press depends mostly on the achievement of democratic values by society and regime or how much its desire for it" [6, p. 8]. Classical newspaper "Kaspi" functions as a democratic press agency in Azerbaijan's news independence conditions.

If legal conditions created by modern Azerbaijan for uncensored democratic press, on the one hand, stipulates the emergence of newspapers and magazines with new perspectives, on the other hand, it gives an opportunity for classical newspapers and magazines to come up again and present new publications of the most memorable ones among them. Among such publications, "Molla Nasraddin", "Fuyuzat", "Ishig" etc. magazines and especially, newspaper "Kaspi" can be mentioned as an example. The founder of the re – publication of newspaper "Kaspi", PhD in philology, poet, publicist Sona Valiyeva mentions that "In 1881, after a permission was given to Kuzmin, the first editor, for the publication of newspaper "Kaspi", Azerbaijan's progressive-minded intellectuals tried to reflect their opinions and ideas in their articles on different literary and social themes" [9, p. 442]. Since 1881, as this newspaper which was published in the Russian language in Baku gathered national intellectuals, brought up the ideas of Azerbaijanism and independence more or less and did serious works for enlightenment at that time, it has given us a basis for its re – publication at our time. So, since 1999, newspaper "Kaspi" has been released and it has served and serves to our people with the formation of democratic rules in the country, the mission of enlightenment, preservation of our state and statehood with accurate, unbiased information and literary and artistic publicism and promotion of literature and art.

"Kaspi" which has a special place in the history of Azerbaijani press took an active part in the process of enlightenment, national identity and national consciousness and delivered its ideas to the people with the intellectuals gathered around it. This newspaper was published in Russian at a time when tsarist censorship didn't allow for the publication of newspaper in Azerbaijani in the end of

XIX century. "Therefore, our progressive and national - minded intellectuals – H. Zardabi, N. Vazirov, N. Narimanov, A. Hagverdiyev, M. Shahtakhtli, A. Aghayev, F. Kocharli, I. Sultan etc. had to disseminate their opinions and views in the pages of media outlets in Russian, as well as, "Kaspi" for a long time" [7, p. 114]. "Kaspi", which was published between 1881 – 1919, had a mission of service for the nation with the power of the above mentioned intellectuals. It is true that though sometimes, the newspaper was obliged to function on the basis of "orders" of imperial policy, it was difficult to prevent national spirit of its authors. Re-publication of the newspaper under the foundation of Firm "Intellect" on March 7, 1999, is the result of the respect and esteem of modern Azerbaijan to our classical heritage. Re-published "Kaspi", presenting its idea in the program article in the 1st issue, expressed its main aim and desire. It is said in that program article: "Our main aim is neither earn money by disseminating cheap sensation, nor to turn it into anyone's political tribune, nor settle accounts with anyone, nor implement anyone's different orders. We want to build a since communication with you (readers – Red.) and highlight your ideas as they are without passing them from any political and personal filter" [5].

Indeed, facts show that modern "Kaspi" is not only devoted to the ideas of its predecessor, but also, it is implementing very serious creativity for nation by increasing these ideas by far.

According to Professor Jahangir Mammadli, the platform, information policy, aims and duties of the newspaper are felt clearly from its first issue. At that time, when there were a lot of newspapers emerged, "Kaspi" undertook the mission to continue bright ideas of its predecessor and support the policy of modern Azerbaijan, its views on social problems, economic development and cultural development speaking from the demands of a new era. So, an Azerbaijani reader obtained a newspaper highlighting the development of Motherland, expressing the problems of readers and giving impetus to the development of our culture from new parameters. "Kaspi" took all its opportunities for professionalism based on national traditions of journalism and gathered professional publicists and journalists. The newspaper, based on international creativity principles of journalism, has formed the unbiased and honorable information policy. This newspaper, which has passed over its ten years of activity, has a stable auditorium of readers. This auditorium well feels and knows the difference of this newspaper from other newspapers that allow for lies and insults for increasing the circulation of unbiased and fair information. "Kaspi" is a

press agency that maintains its information patience, accuracy and impartiality in a moment when there is a place for the most critical, hot and any type of rumors in the community life. Issues which is covered by these themes determine its information policy and typological nature.

The scope of theme of “Kaspi” is very broad. The world of theme of the newspaper which is published in the volume of 16 – 24 pages, first of all, include Azerbaijan and Azerbaijanism. The newspaper takes foreword the factors that give impetus to the development of Azerbaijan, love for Motherland, formation of the feeling of struggle against enemies, especially, Armenian aggressors that occupied our lands. Every issue that is of a public importance is in the center of newspaper’s attention.

One of the main aspects that differentiate “Kaspi” is that the newspaper keeps policy and political issues on the agenda, highlights political life of the country always on a separate newspaper, but itself doesn’t interfere with the policy. It goes without saying that several officers of the newspaper have their impacts on the policy and activity of politicians, but political word and political theme are presented mostly without any comment in the information of newspaper.

We have mentioned the newspaper’s direction of Azerbaijanism above. “Kaspi” always keeps the territorial integrity of Azerbaijan, activity of Azerbaijanis for serving to Motherland and international organization’s attitude towards Azerbaijan.

The most serious tradition accepted by “Kaspi” from classical “Kaspi” is that this newspaper is also devoted to the ideas of enlightenment. One of the main places of newspaper is occupied by its attitude towards literary word, literature and national art. Especially, “Kaspi” does a great job by giving a special place for artistic literature. Artistic literature is not among the themes to which newspaper addresses rarely. The newspaper delivers artistic literature to reader with special additions. And also, this artistic word occupies a regular place on pages of newspaper. “Kaspi” calls readers to not forget past and be aware of today presenting new literary trends, successful examples of national literature and examples of our classic. Artistic and aesthetic value of these examples usually instill optimistic mood and optimistic future for readers. And also, these pages that are presented with the addition of “Literature” have a very interesting slogan promising objectivity: “We don’t publish signatures, but works” [8, p. 40].

“Kaspi” continues its path which has begun from the end of XIX century in the second decade of XXI century. This newspaper provides readers with unbiased, accurate, honest information focusing on the strongest historical roots of Azerbaijani press. Today, processes of revival of many newspapers which have glorious traces in the history of press and re-writing their names in the history are observed. Do these desires of journalists always coincide with their activity? An unambiguous answer to this question is very difficult. However, today’s activity of “Kaspi” gives serious basis for being optimistic.

We have many newspapers that operate with independent and democratic principles. We wanted to summarize the activity of the examples of democratic press showing themselves in the modern environment of Azerbaijani media analyzing two newspapers which are popular among readers.

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Grounds for the marriage and family relations to appear in Ukraine

Abstract: The proposed article provides an overall characteristic of grounds for the marriage and family legal relations to appear comply with the legislation of Ukraine. Thereat, it is noted that the grounds of marriage and family relations are as follows: 1) marriage; 2) actual marital relations; 3) church marriage; 4) civil partnership.

Keywords: family, family relations, marriage, marriage and family relations, entering into a marriage.

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Підстави виникнення шлюбно-сімейних правовідносин в Україні

Анотація: В запропонованій статті надається загальна характеристика підстав виникнення шлюбно-сімейних правовідносин за законодавством України. При цьому наголошується, що підставами виникнення шлюбно-сімейних правовідносин є: 1) шлюб; 2) фактичні шлюбні відносини; 3) церковний шлюб; 4) цивільне партнерство.

Ключові слова: сім'я, сімейні правовідносини, шлюб, шлюбно-сімейні правовідносини, укладення шлюбу.

Постановка проблеми. Питання шлюбно-сімейних відносин у процесі розвитку й становлення нашої держави не лише в економічному, а й у соціально-культурному, а також у морально-етичному плані, є найбільш актуальними, оскільки вже самі по собі є основою становлення й розвитку суспільства в цілому.

Шлюбно-сімейні правовідносини є основою розвитку та становлення суспільства, і регламентується положеннями сімейного права. Однак, враховуючи деякі зміни традиційної моделі соціальної поведінки людей в частині сімейно-шлюбних відносин, які відбулись у деяких зарубіжних країнах, в тому числі в окремих країнах-членах ЄС, актуальним на сьогодні, є дослідження підстав виникнення шлюбно-сімейних правовідносин.

Сімейне право посідає провідне місце серед інших галузей права: сім'я необхідна кожній людині. Вона впливає на розвиток суспільства, його моральне здоров'я і є одним з факторів підвищення соціальної активності людей. Саме в сім'ї формуються основи характеру людини, її ставлення до праці, моральних, ідейних і культурних цінностей. Ось чому демократичне суспільство зацікавлене у міцній, духовній і морально здоровій сім'ї. Міцна сім'я - міцне суспільство [1; С. 1].

Сімейні правовідносини – це наслідок застосування норм шлюбно-сімейного законодавства до конкретних відносин у сфері шлюбу і сім'ї [2; С. 259].

На сьогодні Українська держава перебуваючи на шляху до євроінтеграції, з метою вдосконалення та уніфікації норм та положень інституту сімейного права в частині нормативно-правового регулювання виникнення шлюбно-сімейних правовідносин, вживає заходів щодо врахування сформованих європейськими органами стандартів та правових традицій.

Конституція України 1996 року [3], Цивільний кодекс України (далі – ЦК України) [4], Сімейний кодекс України (далі – СК України) [5] містять у собі цілий перелік норм, спрямованих на захист прав і свобод осіб, які перебувають у шлюбно-сімейних правовідносинах, а також на регулювання правовідносин подружжя; осіб, які перебувають у фактичних шлюбних відносинах; осіб, які перебувають у церковному шлюбі тощо, на принципах взаємоповаги особистих немайнових і майнових прав, що виникають після виникнення шлюбно-сімейних правовідносин.

Слід враховувати, що соціально-економічні зміни, які відбулися в Україні, справили вирішальний вплив на розвиток шлюбно-сімейних відносин [6, С. 43-46]. У зв'язку з цим особливої актуальності набувають питання підстав виникнення шлюбно-сімейних правовідносин.

Аналіз останніх досліджень і публікацій, в яких започатковано розв'язання даної проблеми. Теоретичну основу дослідження склали наукові праці таких правознавців, як: М.В. Антокольська, О.М. Бандурка, О.Б. Безпалько, А.М. Белякова, В.І. Бошка, Д.В. Генкін, В.С. Гопанчук, О.В. Дзера, А.С. Довгерт, О.О. Єрошенко, Н.М. Єршова, І.В. Жилінкова, І.А. Загорський, О.М. Калітенко, В.М. Косак, О.М. Калітенко, Н.С. Кузнєцова, Г.К. Матвеев, В.О. Рясенцев, З.В. Ромовська, В.М. Самойленко, В.І. Семчик, Г.М. Свердлов, Р.О. Стефанчук, Є.А. Суханов, В.А. Тархова, Ю.К. Толстой, Є.О. Харитонов, Ю.С. Червоний, Я.М. Шевченко та інших.

Мета статті. Метою статті є науковий аналіз, систематизація, оцінка, розробка пріоритетних напрямів сімейного права в сфері виникнення шлюбно-сімейних правовідносин, теоретичних та практичних проблем, що виникають у сфері визначення підстав виникнення шлюбно-сімейних правовідносин.

Викладення основного матеріалу. Сфера шлюбно-сімейних правовідносин у сфері встановлення кожною державою в межах своєї юрисдикції власних правил регулювання однакових правовідносин є унікальною.

Шлюбно-сімейні правовідносини – це наслідок застосування норм сімейного законодавства до конкретних відносин в сфері шлюбу сім'ї [2; С. 260].

Традиційно відповідно до чинного сімейного законодавства України підставою виникнення шлюбно-сімейних правовідносин визнається шлюб. Так, відповідно до ст. 21 СК України шлюбом є сімейний союз жінки та чоловіка, зареєстрований у державному органі реєстрації актів цивільного стану [7; С. 47]. При цьому наголошується, що проживання однією сім'єю жінки та чоловіка без шлюбу не є підставою для виникнення у них прав та обов'язків подружжя, оскільки сімейне законодавство України визнає лише зареєстрований шлюб як факт, що породжує сімейні права та обов'язки. Водночас СК України містить у собі певні розбіжності стосовно регулювання зазначених правовідносин, зокрема, низка статей (наприклад, ст. ст. 74, 91 СК України) закріплює такі самі майнові права для осіб, що знаходяться у фактичних шлюбних стосунках, як і для подружжя (право спільної сумісної власності на майно, право на утримання). Крім того,

слід зауважити, що останні тенденції розвитку сімейного законодавства України на шляху до Євроінтеграції не враховані у вітчизняному законодавстві, отже, виникає нагальна потреба у перегляді тих правових конструкцій, які давно сформувалися і не враховують потреб сьогодення.

Що стосується церковних шлюбів, то відповідно до ч. 3 ст. 21 СК України [8; С. 91] релігійний обряд шлюбу не є підставою для виникнення у жінки та чоловіка прав та обов'язків подружжя, крім випадків, коли релігійний обряд шлюбу відбувся до створення або відновлення державних органів реєстрації актів цивільного стану. На сьогоднішній день позиція законодавця є такою, що укладення чоловіком і жінкою певного шлюбного обряду за звичаями тієї чи іншої народності, або шлюбний релігійний обряд (вінчання), не є підставою для виникнення у них прав та обов'язків подружжя. Винятком з даного правила є випадки, коли релігійний обряд шлюбу відбувся до створення або відновлення державних органів реєстрації актів цивільного стану (РАЦС). У зв'язку з цим необхідно розрізняти шлюб, зареєстрований в органах РАЦС, і церковний шлюб, укладання якого є особистою справою осіб, які вступають у шлюб. Така ж сама тенденція щодо вирішення легітимності релігійних та цивільних шлюбів передбачена і в СК РФ, проте в міжнародній практиці з цього приводу є різні підходи – деякі країни визнають лише цивільні шлюби (наприклад, Франція, Німеччина), а деякі визнають і релігійні шлюби також (наприклад, Англія, США – у певних штатах тощо).

Слід зазначити, що у популярній літературі досить часто не правильно застосовують термін „цивільний шлюб”, під яким розуміють фактичне проживання чоловіка і жінки однією сім'єю без реєстрації шлюбу, проте в СК України зазначені відносини називаються фактичними шлюбними відносинами. Крім того, цивільним шлюбом визнається шлюб, укладений з дотриманням певних вимог в органах РАЦС, у зв'язку з чим вживання терміну „цивільний шлюб” для правового регулювання фактичних шлюбних відносин, не є доцільним і не правильним з правової точки зору.

Проте незважаючи на неприйняття релігійних шлюбів державою, вони несуть за своєю суттю, ідею зміцнення сім'ї як такої, і як наслідок, зміцнення суспільства в цілому. Аналізуючи наведені вище аспекти можна зробити висновок, що держава може визнавати церковні шлюби як доказ і форму виявлення і ви-

знання взаємних обов'язків між чоловіком і жінкою, які з якихось причин не зареєстрували свій шлюб в державному органі РАЦС.

Хоча церковний шлюб можна умовно віднести більш за все до фактичних шлюбних відносин, оскільки сам по собі релігійний шлюб не створює в розумінні СК України прав та обов'язків як у подружжя. Проте, все ж таки, в даному випадку доцільніше виділяти церковний шлюб окремо. При цьому документ, виданий відповідною церквою або іншою релігійною організацією буде беззаперечно свідчити про точний момент (конкретно визначену дату) початку виникнення шлюбно-сімейних правовідносин між особами, які перебувають у церковному шлюбі.

Що стосується цивільного партнерства, то воно є однією з підстав виникнення шлюбно-сімейних правовідносин та однією з форм створення сім'ї або форми організації сімейного життя. Проте, така позиція закріплена на законодавчому рівні деяких країн. В Україні ж в останні роки зазначені питання набувають все більшої актуальності.

Цивільне партнерство – це соціальний інститут, що визнаний державою, в якому юридично визначені правовідносини між двома особами, які не бажають або не мають можливості зареєструвати шлюб, і які можуть бути однією або різною статтю.

Україна зобов'язалася дотримуватися Угоди про асоціацію з ЄС, яка зокрема, визначає, що внутрішня політика нашої держави формується через повагу до прав людини та основоположних свобод. В рамках зобов'язань України перед ЄС готується до оновлення і українське чинне законодавство. Зокрема, в 2017 році в Україні можуть бути легалізований інститут цивільного партнерства. Легалізація передбачена Національною комісією у сфері прав людини на період до 2020 року. Зазначені дії вчиняється на виконання Указу Президента України від 25.08.2015 року «Про затвердження Національної стратегії у сфері прав людини» (далі - Стратегія) [9], зокрема, у листопаді 2015 року урядом був затверджено "План заходів з реалізації Національної стратегії у сфері прав людини на період до 2020 року [10], в якому є пункт про запобігання дискримінації. Так, у розділі 105 Стратегії зазначено, що забезпечення комплексності та узгодженості законодавства у сфері запобігання та протидії дискримінації, упровадження відповідних та своєчасних позитивних дій на національному та місцевому рівні у

сфері запобігання та протидії дискримінації, забезпечення ефективного та своєчасного реагування держави на нові виклики.

Хоча відповідно до Стратегії і визначається цивільне партнерство, є очевидним, що зазначені питання є дуже дискусійними і не сприймаються однозначно ні державною, ці церквою, ні суспільством. Питання запровадження у сімейному законодавстві України цивільного партнерства завжди будуть залишатися дискусійними, адже завжди будуть виступати дві групи осіб: як прихильники, так і ті, хто категорично заперечує проти існування такого явища як такого. Попри те, що кожна зі сторін надає достатньо аргументів на підтвердження своєї позиції, очевидним є той факт, що зазначене питання завжди буде залишатися риторичним в Україні. Зазначене обумовлено не лише тим менталітетом населення, який сформувався в нашій державі, але й і іншими факторами. Варто зауважити, що не лише в Україні, де цивільне партнерство не знайшло свого остаточного юридичного закріплення, але й і в інших державах, де цивільне партнерство визначено на законодавчому рівні, зазначенні питання продовжують існуючу дискусію як з прихильниками, так і з тими, хто принципово заперечує проти існування зазначеного явища як такого. Незважаючи на складність та проблематичність зазначеного питання, можна дійти висновку, що з правової точки зору цивільне партнерство вже існує; такі випадки є і не говорити про них не можна. Можна по-різному відноситися до цивільного партнерства, можна по-різному оцінювати моральні аспекти вказаної проблеми, проте з правової точки зору – проблема залишається. І саме з юридичної точки зору потрібно говорити не про моральні, а про суто правові аспекти, які полягають у вирішенні наступних питань: визначенні правового режиму спільно набутого майна, укладання цивільно-правових договорів, спадкування майна тощо.

Якщо аналізувати підстави виникнення шлюбно-сімейних правовідносин, то можна дійти висновку, що взагалі підставами виникнення шлюбно-сімейних правовідносин є: 1) шлюб; 2) фактичні шлюбні відносини; 3) церковний шлюб; 4) цивільне партнерство.

Враховуючи, що шлюб є основною формою організації сімейного життя, який досить детально врегульований у чинному законодавстві України, є нагальна потреба врегулювати і інші підстави виникнення саме шлюбно-сімейних правовідносин. У зв'язку з чим для інших підстав виникнення шлюбно-сімейних правовідносин (фактичні шлюбні відносини, церковний шлюб; цивільне парт-

нерство) необхідно встановити умови та перешкоди для перебування у шлюбно-сімейних правовідносинах за аналогією, як у шлюбі шляхом внесення відповідних змін до СК України.

Висновки з дослідження і перспективи подальших розвідок у цьому напрямі. Отже, на сьогодні шлюбно-сімейні правовідносини, є водночас явищем соціально-узагальненим та особисто-конкретним. Вони випробують на собі дуже складний і суттєвий вплив правових і моральних правил, в тому числі й нетрадиційних моделей соціальної поведінки, етичних норм, законів тощо. Виникнення шлюбно-сімейних правовідносин є важливим процесом у житті багатьох людей, тому правильне вирішення виникаючих проблем щодо його правового регулювання впливатиме на подружжя; осіб, які перебувають у церковному шлюбі, фактичних шлюбних відносинах, цивільному партнерстві, їхніх неповнолітніх дітей, інших осіб, на майнові та немайнові правовідносини.

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Aspects of creating a program of preventive physical rehabilitation of shoulder injuries in the women's triathlon

Abstract: Features of the components of preventive physical rehabilitation of shoulder injuries in the women's triathlon are examined. Presented are traditional and modern methods and tools used in conducting preventive physical rehabilitation of shoulder injuries in triathletes.

Keywords: women's triathlon, shoulder injuries, preventive physical rehabilitation, rehabilitation means.

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Аспекты создания программы превентивной физической реабилитации повреждений плеча в женском триатлоне

Аннотация: Рассмотрены особенности компонент превентивной физической реабилитации повреждений плеча в женском триатлоне. Представлены

традиционные и современные методы и средства, используемые в проведении превентивной физической реабилитации повреждений плеча у триатлонисток.

Ключевые слова: женский триатлон, повреждения плеча, превентивная физическая реабилитация, средства реабилитации.

Постановка научной проблемы и ее значение. Развитие женского триатлона, повышение тренировочных и соревновательных нагрузок приводит к повышению вероятности травматизма опорно-двигательного аппарата (ОДА), особенно плеча спортсменок [1-4]. Этот вид спорта, в котором легко можно получить травму тела и конечностей, включает плавание, велосипедную гонку и бег. Поскольку тренировки и соревнования проходят в естественных условиях тяжесть травм плеча возрастает при больших физических нагрузках, стрессовых ситуациях, недостаточном развитии физических качеств, дисбалансе силы и гибкости верхних конечностей [1-3].

Анализ последних исследований.

Во время интенсивных тренировочных занятий и соревнований плечи спортсменок испытывают значительные статодинамические нагрузки, а для плечевого сустава они признаны травмоопасными [4]. Вопросы травматизма плечевого сустава (ПС), обеспечения превентивной физической реабилитации (ПФР) в женском триатлоне недостаточно изучены, поэтому разработка программы ПФР повреждений плеча в этом виде спорта является важной научной проблемой, решение которой обеспечит здоровье и спортивное долголетие спортсменок.

В процессе ПФР различных повреждений плеча применяют следующие методы и средства: специальные физические упражнения лечебной гимнастики [1-4] и на нестабильных сферах-тренажерах [8], средства физиотерапии и гидрокинезотерапии [1-4], вибротерапии [5, 6] и механотерапии [9]. Однако, еще мало рассмотрена новейшая компьютеризированная система для предупреждения повреждения плеча - Multi-Joint System MJS 403 Plus (MJS) [7].

Цель и задачи работы. Цель работы – проведение анализа научных литературных и информационных источников относительно особенностей повреждений плеча спортсменок в женском триатлоне, необходимости создания соответствующей программы ПФР с использованием традиционных и современных средств. Реализация поставленной цели требует решения *следующих за-*

дач: анализ характерных для женского триатлона повреждений плеча; определить существующие методы профилактики характерных повреждений плеча триатлонисток; дополнить существующие методы профилактики традиционными и современными средствами для создания компонент новой комплексной программы ПФР.

Изложение основного материала и обоснование полученных результатов исследования.

В последние годы во многих странах мира быстро развивается женский триатлон. Занятия триатлоном улучшают работу сердечно-сосудистой системы (ССС) и дыхательной системы, укрепляют мышечную систему и ОДА [1-3]. Упражнения триатлона имеют синергетический эффект: каждое из них усиливает действие других – тренировки в беге помогают улучшить результаты в плавании и велоезде, а велоезда способствует бегу и т.д. Разнообразие двигательной активности в женском триатлоне очень важно в психофизическом отношении [1, 3].

Обследования триатлеток определили характерные травмы плеча, высокий процент которых связан с большой нагрузкой на руки во время длительной велоезды и плавания [1, 3, 4]. При травме плеча сначала появляется легкая боль, ощутимая только во время плавания или в упоре на руль во время велоезды, но она может перерасти в умеренную (сильную), сопровождающую спортсменку в быту. На ранней стадии травмы боль уменьшается после тренировки, но если спортсменка не отдыхает, не лечит травму, боль может быстро возвратиться при любых движениях плечом. Симптомы повреждения плеча: боль, скованность в движениях, болевые ощущения при сгибании руки, хруст в плече, слабость мышц, сверхчувствительность к прикосновениям, ощущение смещения в плече. Боль может ощущаться в верхней, передней, боковой или задней части плеча, отдавать вниз в руку, до локтя [2, 4].

Наиболее частые причины боли в плече [1-4, 6]: травмы (16-55)% всех травм крупных суставов - повреждения ротаторной манжеты плеча (РМП) и Банкарта, вывихи; тендинит, нестабильность плечевого сустава, и др. Причины повреждений РМП: импинджмент-синдром, травмы и микротравмы во время резких движений рукой, ишемические дегенеративные изменения самих ротаторов. Встречаются полный или частичный разрыв одного (нескольких) сухожилий (ротаторов), чаще повреждаются сухожилия надостной мышцы плеча,

которые обеспечивают форсированное отведение руки. Клиническая картина повреждений РМП: боли в плече, усиливающиеся при отведении руки, ограничение объема движений, снижение силы травмированной руки.

Например, повреждение плеча в плавании провоцируют [4]: плохая техника гребка, резкое увеличение нагрузок и интенсивности тренировок, неправильное положение тела, подвижность шеи и верхней части спины, мышечный дисбаланс плечевого пояса. В плавании вольным стилем работают разные группы мышц; одни - более сильные и выносливые (внутренние ротаторы: грудная мышца и широчайшая мышца спины), другие - слабые (внешние ротаторы, трапециевидные мышцы). Этот дисбаланс влияет на биомеханику плавания и приводит к повреждениям, поэтому следует его снизить и выполнять комплексные упражнения, поскольку укрепление менее сильных мышц и повышение гибкости плеч и грудного отдела позвоночника снижают вероятность появления болей и повреждений.

Методы и средства, планируемые к применению в программе ПФР повреждений плеча в женском триатлоне могут включать [1-10]:

специальные физические упражнения для формирования мышечного корсета и снижения нагрузки на плечи при дневной активности, спортивной деятельности, которые обеспечивают изометрическое и изотоническое сокращения мышц [3, 4]; физические упражнения для развития баланса, координации движений на нестабильных сферах (полусферах) - тренажерах (фитбол, Bosu), влияющие на глубокие мышечно-связные структуры [8]; обучение контролю за состоянием своего тела выполнением упражнений на растягивание и укрепление связок, восстановление объема движений в плече [1, 3]; методы кинезотейпирования и массажа [4-6]; функциональный тренажер TRX [10], гидрокинезотерапия, вибротерапия - виброплатформа ViaGym [1, 3, 5, 6] и гибкий вибротренажер Flexi-Bar [1-6], механотерапия, физиотерапия [1, 5, 6]; компьютеризированную систему MJS [7] и реабилитационные тренажеры [9].

Некоторые основные компоненты программы ПФР повреждений плеча в женском триатлоне.

Упражнения на тренажере TRX [10] лежат в основе программы TRX Suspension Training – эффективной методики функционального тренинга с использованием собственного веса для проработки мышц ПС и всего тела.

Занятия на тренажере подходят для спортсменок с любым уровнем физической подготовки, эффективно развивают силу, выносливость, гибкость и равновесие.

Методику кинезиотейпинга [4-6] используют спортсмены, она доказала на практике эффективность профилактики и реабилитации спортивных травм. Сущность кинезиотейпинга в том, что он позволяет организму лечить самого себя, стимулируя его восстановительные функции через кинезиотейп (пластырь с уникальными свойствами), который начинает оказывать положительное сенсорное воздействие на поврежденное место практически сразу после соприкосновения с кожей. Он купирует болевой синдром, останавливает воспаление, обеспечивает фиксацию и поддержку поврежденного участка тела, сохраняет и не ограничивает естественную свободу движений, способствует восстановлению функций мышц, связок, сухожилий. Для конкретной спортивной травмы должна быть выбрана правильная техника тейпирования.

Портативные вибротренажеры (платформа, гибкий Flexi-Bar) для укрепления мышц плеча - важная часть программы ПФР травм плеча. Вибротренировка улучшает гибкость, подвижность и координацию, повышает изометрическую и изотоническую силу мышц, ускоряет восстановление. Перспективными являются физические упражнения с совместным и одновременным использованием обеих тренажеров – платформы ViaGym и гибкого Flexi-Bar [5, 6].

Компьютеризированная система MJS с биологической обратной связью в программе ПФР повреждений плеча [7] обеспечивает объективные измерения и количественную оценку двигательных характеристик ПС, пространственная организация которого связана с повреждением РМП. В специальный ортез системы фиксируется верхняя конечность с поврежденным ПС. На экране персонального компьютера (ПК) выдаются графические или игровые задания, в ходе которых человек травмированной конечностью перемещает курсор на экране ПК. Физический терапевт может помогать, дополнять движения человека с помощью системы. Задачи для пациента можно моделировать, максимально приближая их к тем движениям, которые он выполняет в быту или в спорте.

Плечо системы (механическая рука) MJS - это объединенная система, расположенная параллельно верхней конечности человека, правильные антропоморфные (механические) руки созданы согласно функциональным принципам биокibernетики. Эта механическая рука обеспечивает три диапазона свободы в трехмерном пространстве с одновременным определением каждого

движения. Человек должен следовать заранее разработанной траектории на экране ПК, чтобы исследовать сложные совместные движения, которые отслеживаются и записываются для последующей оценки и сравнения с набором ссылок на индексы. Это помогает физическому терапевту (оператору) правильно создать индивидуальную программу ПФР.

Движения в ПС происходят вокруг главных осей: фронтальной, сагиттальной и вертикальной. Существуют также круговые движения (циркумдукция). Во время движения вокруг фронтальной оси рука производит сгибание и разгибание. Вокруг сагиттальной - отведение и приведение, а вокруг вертикальной - вращение конечности кнаружи (супинация) и внутрь (пронация). С целью расширения потенциала системы MJS она имеет 3 регулируемых блока с независимым управлением силы: первый для сгибания и разгибания, второй – для отведения и приведения, третий для пронации и супинации с целью точного контроля двигательных упражнений.

В системе имеется инерционный датчик для контроля движения руки. Это может быть одинарное (рука) или двойное движение (плечо и предплечье). В первом случае можно управлять движением плеча, во втором - пронацией и супинацией кисти, сгибанием локтя и давлением руки, которые полезны для профессиональной терапии. Преимущество системы - свободные движения конечности, отдельные от системы антропометрических движений. Система MJS может использовать электромиографию, синхронизированную с движением конечностей для оценки мышечной активации. Она состоит из четырех каналов сама по себе, а также ее можно подключить к ПК.

Выводы. Использование современных методов и средств (в том числе и технических) может повысить эффективность проведения ПФР повреждений плеча в женском триатлоне, обеспечить регресс клинических проявлений, увеличить объем движений в верхних конечностях, повысить повседневную активность и спортивное мастерство, улучшить качество жизни триатлонисток.

Перспективы дальнейших исследований состоят в разработке и внедрении комплексной программы ПФР повреждений плеча в женском триатлоне, основанной на концептуальных подходах к профилактике травматизма плеча с использованием традиционных и современных методов и технических средств.

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***The peculiarities of primary schoolchildren training
following the innovative educational pattern
'school-lyceum' establishment***

Abstract: In his article the author focuses on the problem of primary schoolchildren training. Having analyzed the results of a research experiment in an innovative working environment at the lyceum 'Intellect', the author introduces a new form of a secondary school establishment – school-lyceum, basing his achievements on an immense experience of his work. Also, the author analyzes the necessity of teaching Science in 2-4 grades as a primary school subject, worked out by N.M. Gordeeva and T.O. Logvinovskaya. He attracts our attention to the need of a further research extension in this area.

Keywords: primary school, innovative educational environment, education quality, introducing of innovative technologies, school curriculum upgrading, specialized education.

Scientific problem reasoning

The problem of education quality has always been acute and interested the most advanced teachers in Ukraine. Numerous thesis projects have been dedicated to the study of this problem (T.O. Lukina, V.E. Lunyachek, S.M. Nikolaenko, S.F. Odaynyk, V. Olhovych and others). But every author of the research focused attention on a single aspect of the problem and offered different ways of solving it (staff selection and training, the improvement of managerial issues, new technologies implementation, etc.). On the contrary, S.V. Romanovskiy's 28-year experience of education quality research lets him prove that this problem can be solved only by a systematic and complex approach to education quality improvement in primary, secondary and high school (pedagogical staff, administration, school curriculum,

modern technologies, teaching methods and techniques). It is not possible to reach high standards in higher education if the applicants willing to enter Universities are not educated enough or have a low level of expertise. At the same time, in order to have great achievements in high school it is necessary to have a systematic, innovative and flexible approach not only in secondary but also in primary school. The author focuses on solving the abovementioned problems in elementary school.

Research and published works analysis

The problem of primary school teaching has been paid much attention to recently. A new way of teaching Science – attending museums – has been introduced in Great Britain [6]. In Ukraine, G.O. Anisimova and O.V. Nikulochkina were developing new methods of teaching in primary school. In 2003 a team of Ukrainian specialists developed and launched an all-Ukrainian project 'Ukrainian Intellect', which entailed a huge number of issues concerning the work with elementary school children. The project is thoroughly described in a number of published works in 'Ridna Shkola' magazine (by I. Gavrysh, N. Gontarovska, G. Danylenko, V. Evdokymova, O. Kovalenko, O. Scherbakova and others) [5].

But the question of linking a primary school educational process with the one in the secondary and further high school has almost never been touched upon seriously. That is why the aim of this article was to share certain results of an experimental research in the sphere of teaching schoolchildren of primary school after years of working with more adult pupils. It was a natural and logical necessity in this pedagogical research.

The main part

Having analyzed the problems which arose among schoolchildren of secondary and high school, the author made a conclusion that the reason of children's bad level of expertise lies not only in ineffective teaching methods and superficial school programs but also in losing a big amount of time during the sensitive period (primary school), when young learners are more capable of taking in new information. A competitive selection of children who wanted to enter the 5th grade kept demonstrating very bad results of their knowledge and skills, especially in Math. That is why, in spite of lyceum's principle to work with secondary and high school children only, it was decided to start forming a new environment for younger learners.

Thus, a group of creative teachers developed specialized course books for teaching Science in English (however, some of them are still being tested). These are author's books and programs tailored for teaching this subject in 2-4 grades. And there have been really stunning results. When our schoolchildren study natural phenomena during their Natural Science lessons in Ukrainian (according to the program of Ministry of Education of Ukraine for 1-4 graders) like Nature in Spring, Nature in Summer, Nature in Autumn, Nature in Winter, concurrently, they start getting acquainted with the surrounding world and study Plant and Animal Kingdom, Seasons, Solar system, etc. in English. The programs were developed and compiled by N.M. Gordeeva and T.O. Logvinovskaya. During such lessons pupils receive a proper background for further studying Science, continuously revising bilingual terminology, which is essential in secondary school.

To have a better idea about the subject, the author offers a sample of the program for the 2nd graders.

Planet Earth

Earth surface

Earth surface. Water resources. Land

Rock and soil

Rock and soil features. Minerals

Natural changes of dry land

Natural deterioration of rock. Changing of land surface. The influence of weather conditions. Weathering. Soil erosion.

Earth resources

Natural resources. The role of soil.

Using natural resources

The role of water and air in the life of living-beings. Pollution of the environment.

Protection and saving of natural resources

The ways of preserving natural resources. Recycling and saving of natural resources.

Research project

The calculation of water usage during the day.

Vocabulary: river, mountain, valley, plain, continent, mineral, soil, weathering, erosion, pollution, reuse, reduce, recycle, natural resources, conserve [2].

In general, this subject has become a vital part of our research project. Pupils' success does not depend solely on their attempts or desire. It is possible due to thorough work in primary school. What really matters are not only the methodology or technology of teaching, but also the school curriculum, systematic revision, vocabulary expansion, skills development, creating the background for other languages, following another key principle of the lyceum: the language within the subject, the subject within the language. Using digital materials also helps children develop elementary skills of working with computer programs, documents in different formats.

Class activity of the analyzed course is organized by means of using various teaching methods, developed to satisfy the learners' needs: their age peculiarities and the needs of the present day society, a well-developed syllabus [2], published course books and digital experimental techniques.

Thus, young learners (2nd grade) get acquainted with the introductory stage of learning Science. The major part of information is delivered orally. The course embraces such topics as: 1. Living and non-living things. 2. Space. 3. Seasons and weather. 4. Air and water. 5. Feelings. Also, the course material is given in the form of Power Point presentations, recorded in English and Ukrainian, digital books and dictionaries, recorded in English and a video course. Moreover, every published course is followed by a digital one and is recorded by native speakers. The material is for practical use, the texts are of scientific character, they are structured and thematic, vocabulary and grammar have a consecutive advancement [7].

To summarize, it is necessary to say that all our aspirations are thoroughly reflected in the tasks of the abovementioned subject. So, the key goals of Science course in English in primary school are: generalization and systematization of schoolchildren's knowledge, highlighting the importance of studying English as a means of international communication in science, the development of skills for working with audio and video content, working with scientific texts (searching, processing and identifying key information); the development of skills to work with tables and diagrams; the development of speaking competence in (reporting, discussing, debating, etc.); the introduction of basic principles of a scientific approach in research and the development of skills how to apply it in practice (practical and lab work); the development of skills in order to use computer programs such as Word, Power Point, PDF [1, p. 2].

English Language Course (1-4 grades) is based on a specialized curriculum (according to the Memorandum of cooperation with the University of Cambridge, adopted by Ministry of Education of Ukraine).

Lyceum 'Intellect' also pays necessary attention to teaching Math in primary school. Taking into account our previous negative experience in testing 4th graders, the teacher of Math O.A. Myronets, PhD in Math and Physics, has developed a set of advanced training exercises for the 4th graders [3]. Teachers do not schoolchildren's tasks – they are used for regular training and preparing for secondary school testing. Working in primary school our teachers follow the STEM technology and 'Rostok' program. Furthermore, while teaching Ukrainian language our specialists use a highly commended on-line course 'Plickers' [4], which helps our learners not only understand the material, but also develops abstract and logical thinking.

Such systematic approach to boosting children's knowledge and skills certainly required a well-trained and highly-qualified pedagogical staff. So, among 17 primary school teachers there are 12% teachers with category 1 qualification, 12% - with category 2 qualification, 35% - with Master degree, 41% - with high category (1 senior teacher and 2 Methodist teachers).

Conclusions

The results of the experiment testify the necessity of having such a specialized school as school-lyceum. Organization and implementation of educational processes in 1-4th grades ensure a solid foundation for further successful education in secondary and high school classes specializing in Physics and Math. Since it is impossible to build a solid scientific background within 2-3 years of secondary school, we recommend to introduce Science in English in primary school in order to form a proper basis for further development of schoolchildren's competence in secondary and high school. We assume that this progressive approach is our key priority.

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***Economic substantiation of development
and implementation innovative technologies
mathematical method***

Abstract: The article considers the current state of oil production in Azerbaijan, the development and application of innovative technologies are mathematically justified for the purpose of intensification of the deposits that are at the late stage of operation.

Keywords: oil, extraction, innovation, technology, efficiency, method, formula, system, analysis, function.

INTRODUCTION

Presently, maintaining the oil production level in Azerbaijan demands the development of oil fields with the least cost and the maximum extraction of oil hydrocarbons for the entire reservoir life.

The operated fields in the Apsheron peninsula are those that are the most long developed ones (55 to 140 and more years). They are multilayer deposits at the terminal development stage. The features of the wells in the fields are marginality, high water content, low formation pressures, ingress of sand, high viscosity, etc.

During oil production, these disturbances call for developing and introducing innovation technologies to address the following problems:

- increasing oil recovery;
- reducing the oil and gas extraction cost;

- increasing the oil production level.

In 2015, 41.5 million tons of oil and 28.9 billion cubic meters of gas were extracted. As compared to the year 2010, oil production dropped by 8.9 million tons. For oil and gas fields, in 2015, SOCAR produced 8.1 million tons of oil (together with condensate) and 6.8 million m³ of gas. In 2015, as compared to the year 2010, SOCAR's oil production dropped by 400,000 tons and gas production dropped by 4 billion m³.

As of 01.01.2016, the well stock of GNKAR was 9,145 units, including 6,560 operating wells. Note that, of the total number of operating wells, about 80% were drilled before 1960. About 75% of all wells are operated using the pump method and roughly 3% are operated using the compressor method. A significant share (about 67%) of the operating stock are wells that have been producing for over 45 years, with over half of these wells having a production capacity lower than 1.0 t.

According to the estimates of De Golyer and Mac Naughton, the oil volumetric calculations for onshore reserves of the republic are 2 billion tons (Fig. 1).

The role and significance of innovations in the results of research and engineering achievements in increasing the effectiveness of social production are well known. Thus, over 70% of social production growth is ensured owing to technical factors and technological innovations.

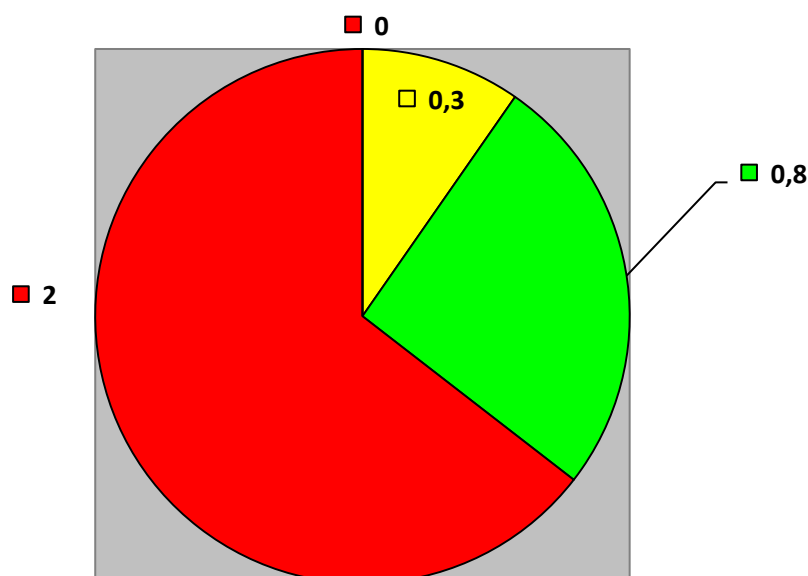


Fig. 1. Onshore reserves of hydrocarbons

0.3 - proved; 0.8 - possible; 2.0 - probable, billion tons

Scientific approach to innovation

In the world economic literature, "innovation" means a potential of research and engineering progress, and it is interpreted as "reflected in new products and technologies". Different scientists, depending on the concept, goal and object of their works, consider innovations as follows: T. Yevdokimova and G. Mikhalkova – the innovation of an idea as scientific knowledge in the form of innovation technologies or services can be defined as a transformation process.

V. Medinsky – innovation instruments are discoveries in scientific research or using a sample and object of better quality than an analog can predict.

Analysis of different approaches to the understanding of innovations allows drawing a conclusion that the changes in the content of a specific innovation process are the basic change function.

J. Sumpeter distinguishes five types of such changes [1, 3]:

- new methods, new technologies, production processes or using software for new markets;
- using a product with new properties;
- using new kinds of raw products;
- production changes in an organisation and its logistics;
- appearance of new sales markets.

In R. Morozov's opinion in a wide sense, these are new products, production, financial, commercial and other specific social and economic and technical solutions in the form of profitable innovations.

The main obstacles to the development of innovations at the republic's petroleum industry enterprises are as follows: no financial aid from the state, low innovation level potential, lack of qualified personnel, and lack of information on new technologies and high economic risk.

Sustainable development of the economics of the country's petroleum industry calls for investigating the possibilities of using innovation technologies. From this point of view, innovation processes can be classified into two groups:

- The first group includes developing measures resulting in positive changes in the petroleum industry.
- The second group is the basis of the program of innovation development of organisational and economic measures.

Substantiating the development and introduction of innovation technologies

To a greater extent than in other industries, petroleum and gas companies should execute innovation projects requiring investments for finding new reserves of hydrocarbons to compensate for declining oil production. Note that leading foreign petroleum and gas companies usually reinvest about 60% of their cash flow (profit) in new exploration and development projects.

Naturally, a no less topical problem during development of oil fields is assessing the effectiveness of the key indicators of innovation projects for developing oil deposits when solving the following problems:

- improving the system of developing oil deposits;
- increasing the oil production of formations;
- reducing the cost of oil and gas production;
- essential updating of the oil production industry built around a new technology of operating oil fields.

In our opinion, namely, references to the criteria of a scientifically sound economic valuation of resources are needed to calculate the cost of development of oil and gas fields and increase the effectiveness of allocation of funds for new technological trends to ensure their all-round use [3, 4].

To intensify oil production from brown fields with a sufficient recoverable reserve of hydrocarbons, we have suggested a conceptual approach for launching the development and implementation of an innovation process in the petroleum industry. According to the new approach, to optimise the version for calculating the level of useful indicators of innovation effectiveness, the following ones are suggested:

$$F(y) = \max X_1(y) < X_2, \quad (1)$$

or

$$F(y) > F_1 \quad X_1(y) = \min, \quad (2)$$

where F is useful effectiveness indicator; F_1 is diaphragm effectiveness level; y are technical characteristics of the vector of production costs; X_1 is development and implementation of new production characteristics of the cost of innovation equipment and technologies; X_2 is maximum limit of innovation costs.

Then, F_1 is required diaphragm effectiveness level:

$$F_2 = F(y) + \lambda [X_1(y, z) - X_2], \quad (3)$$

Minimal level of cost of innovation equipment and technologies:

$$X_3 = X_1(y, z) + \lambda [(y) - F_1], \quad (4)$$

where λ , z is vector of technical solution indicator.

In oil fields, the cost of development and application of innovation technologies is linked to the cost of developing and introducing innovations. These two systems can be written down by the formulas:

a) cost of novel technology development:

$$X_4 = X_1(y_1, z_1, \dots, y_n, z_n) + X[(y_1, y_2, \dots, y_n)], \quad (5)$$

b) cost of introducing and operating a novel technology:

$$X_5 = F(y_1, \dots, y_n) + \lambda [X_1(y_1, \dots, y_n) - X_2], \quad (6)$$

With account of all cost elements included in the system, complex functions have to be solved. Hence, to simplify the interaction of elements, the following formula is suggested:

$$F_i = F_j(y_1, y_2, \dots, y_n, \xi), \quad (7)$$

F_i are elements of useful effectiveness levels; F_j is vector of technical operational cost; y_1, y_2, y_n are the remaining part of elements of vector of technical costs for innovation technologies; ξ is vector of external conditions.

Thus, the maximum system cost limit is calculated using the formula:

$$X_2(y_1, z_1, \dots, y_n, z_n) = X_2^*(y_1, z_1) + X_2^{**}(y_2, z_2) + \dots + X_n(y_n, z_n), \quad (8)$$

The optimal conditions for operational costs of such a calculation will be:

$$\frac{dX_3}{dY_{ij}} = \frac{dX_5(y_i, z_{ij})}{[dY_{ij} - dF(y)]} = 0, \quad (9)$$

If $j = 1, 2, \dots, n$, then

$$\frac{dX_3}{dY_{ij}} = F_i(y_i) - F_{ij} = 0, \quad (10)$$

where Y_{ij} is cost of elements of technical operation of a system; ij is within the framework of the system of technical operational costs; F_{ij} is system economic effectiveness.

Using the above formula for developing and applying new intensification methods, we can find the criteria of the economic effectiveness of innovations with the formula:

$$\Theta_u = \frac{X_i(X_3) + [dX_3(y, z, v) \Delta V_i]}{dV} + \lambda [F(y) - F_i], \quad (11)$$

where X_i (X_3) is economical value of effectiveness; V_i is subsystem total costs; $dX_3(y, z, v)/dV$ is total cost for the entire system.

The economic essence of formula (11) is determining the criteria of the economic effectiveness of developing and introducing innovation technologies in the petroleum industry. The linear dependence between the changing indicators is determined by the linear regression equation. Hence, the oil extraction profitability is determined by formula:

$$R = a + [(b \sum X_{opt} - c \sum X_{opt}) : T \times 100], \quad (12)$$

where $\sum X_{opt} - \sum X_{opt1}$ is the sum of oil production costs prior to and after implementing innovation technologies; a, b, c are parabola values; T is oil field operation term after the innovation program has been introduced ($T = 25$ years).

The special economic benefits of absolute innovation returns is the ratio of the volume of extracted oil reserves for deposits and the oil production volumes:

$$\mathfrak{A}_o = \frac{Q_k}{\sum_{t=1}^T Q_t (1 + E_n)^{t_{np} - t}} \quad (13)$$

where Q_k is amount of extracted oil reserves for deposits; Q_t is annual oil production; E_n is rate of economic effectiveness of investments; $t_{np} - t$ are resources developed for the current year.

Based on the above formulas, an algorithm has been worked out for onshore oil deposits (Fig. 3):

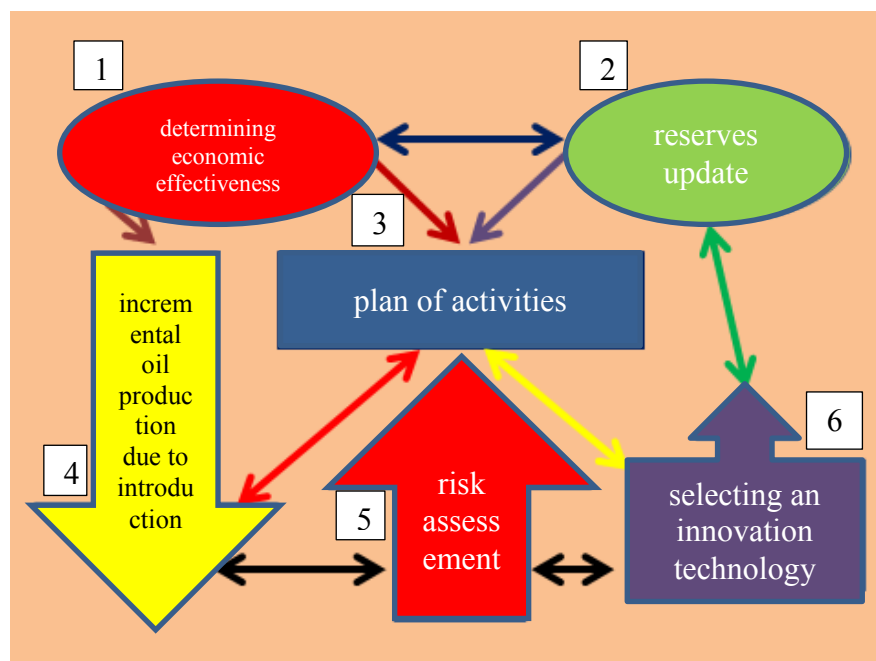


Fig. 3. Algorithm for introducing an innovation technology

As Fig. 3 shows, the key objective of innovation activities is science-based updating of hydrocarbon reserves, selecting innovation technologies and determining the economic effectiveness, developing a plan for introducing innovations and risk assessment.

Conclusions:

1. The country's onshore oil deposits have very big oil reserves. Due to the sharp pressure drop in the formation and deposit inundation, over 22% of recoverable oil reserves remain in the interior. Therefore, the development and operation of oil fields during extraction of these resources demands, basically, a scientific approach to substantiating the introduction of advanced innovation technologies to total extraction of hydrocarbons from the interior.

2. Dynamic development of oil and gas based on implementing innovation projects is a key factor in increasing the reservoir recovery rate.

3. The systems of economics of innovation projects requires determining the function of economic analysis mathematically.

4. Mathematical methods should be used to determine the project risk related to occurrence of sudden events and hazards.

5. Whilst disclosing the content of the innovation cycle, the following is required: a clear understanding of its content and identifying the features of research and technological developments focused to developing innovations. Besides, a process can be controlled only when the main lines of its development are known and the features and the regularities of the object of control have been cognised.

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The concept of nonlinear development of social systems in the context of the theory of self-organization

Abstract: The article reveals the essence of main theories of social development from the perspective of philosophy of science. Analyzes the three main research paradigms (classical, nonclassical, postnonclassical), lists their key patterns. From the position of lateral thinking reveals the essence of the controversy that has arisen as a result of the existence of two models of the evolution of the world: physical (thermodynamics) and biological (Darwinism), as well as its impact on models of social development. We prove the thesis that the methodological solution to this conflict is possible within the framework of postnonclassical science, namely the theory of self-organization. From this point of view disappears as a state of "ultimate chaos" and eschatologist in understanding social development.

Keywords: nonlinearity, indeterminacy, classic-nonclassic-postnonclassic, scientific view-world, stochastic, thermodynamics, Darwinism.

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Концепції нелінійного розвитку соціальних систем в контексті теорії самоорганізації

Анотація: У статті розкривається сутність основних теорій суспільного розвитку з позиції філософії науки. Аналізуються три основні наукові парадигми (класична, некласична, постнекласична), виводяться їх основні патерни. З позиції нелінійного мислення розкривається суть протиріччя, що склалося в результаті існування двох моделей еволюції світу: фізичною (термодинаміки) і біологічною (дарвінізму), а також його вплив на моделі суспільного розвитку. Дово-

диться теза про те, що методологічне розв'язання даного протиріччя можливо в рамках постнекласичної науки, а саме теорії самоорганізації. З цієї точки зору нівелюється як стан «кінцевого хаосу», так і есхатологічності в розумінні суспільного розвитку.

Ключові слова: нелінійність, індетермінізм, класика-некласика-постнекласика, наукова картина світу, стохастичність, термодинаміка, дарвінізм.

Історія філософської думки повна спроб знайти, описати і втілити в життя соціальні моделі альтернативного характеру, пояснюючі зміни в соціальному житті. Перед філософами стоїть непросте питання, що вимагає відповіді: куди рухається людське суспільство, звідки ми прийшли, в якому напрямі розвиваємося, чи є у історії мета і вищий сенс?

Соціальні закони, викликані до життя класичною наукою описують явища, властиві суспільству в періоди еволюційного розвитку, відмінною рисою яких є жорсткий зв'язок між причиною і наслідком, а також лінійні характеристики. У такому розумінні особа втрачає сенс свого існування, перетворюючись на «гвинтик» «соціальної машини», а результат тієї або іншої дії на соціальні системи легко передбачуваний, якщо знати які первинні умови були задані. Таке осмислення соціальної реальності є одностороннім і не зачіпає революційних, катастрофічних змін в історичному процесі. У ці періоди відбувається зміщення акцентів з організації на самоорганізацію, з лінійності на нелінійність, з оборотності на безповоротність, з детермінізму на стохастичність. Особа вже не розчинена в потоці суспільного життя. Вона тепер здатна впливати на макросоціальні процеси.

Сучасне постіндустріальне суспільство з його складною структурою має відкритий характер, і вкрай неоднорідну внутрішню структуру, що приводить соціум в нерівноважний стан, тоді як класична наука, заснована на ньютонівській механіці залишала цю сферу на периферії своїх досліджень, приділяючи основну увагу рівновазі.

З урахуванням сказаного, колишні теорії суспільного розвитку, напрацьовані в класичній науковій традиції необхідно трансформувати, принаймні, в двох аспектах:

по-перше, слід відмовитися від ідеї довготривалої детермінації в історичному процесі і не зводити в абсолют історичну неминучість, закономірність;

по-друге, необхідно переосмислити принцип лінійного розвитку соціальних систем і історичного процесу взагалі.

Усе це безпосереднім чином пов'язано з соціальним замовленням суспільства на нову наукову картину світу, нові адекватніші і більш дієві практичні моделі суспільного розвитку. Виникає необхідність в напрацюванні нових теоретичних і методологічних способів осмислення соціуму, які дозволили б розкрити суть не лише рівноважних періодів його розвитку, але і торкнулися б біфуркаційних фаз, в стані яких знаходиться людство в XXI столітті.

У зв'язку з цим дослідження соціальних систем через призму теорії самоорганізації, методологічний і теоретичний потенціал якої дозволяє більш глибоко і усебічно осмислити цілісність і складність такого феномену як сучасне суспільство, а також діалектичну єдність рівноважних і нерівноважних процесів, в історичному процесі є, на нашу думку, досить перспективним і плідним. Отже, давайте простежимо становлення теорій суспільного розвитку.

Перша цілісна теоретична модель розвитку суспільства в історичному контексті була розроблена в лоні християнської теології. Йдеться, в першу чергу, про теоретичні побудови Августина Блаженного «божественної держави», що створила модель, в якій суспільство – прояв божественної еманации. У його концепції історичний процес з'являється як типовий приклад лінійної моделі розвитку, яка розпрямляє часовий цикл порівняно з греко-римськими теоріями циклічного розвитку. Таке розуміння історичного процесу являється, мало не першою спробою в історії філософської думки висунути ідею прогресу. Основа і сенс історії в ідеалістичних концепціях середньовіччя – божественне Провидіння, що зумовлює порядок і спрямованість розвитку суспільства і історичного процесу. Незважаючи на прогресивність таких побудов для свого часу, все ж подібні теорії намагаються пояснити історію як процес, детермінований деякими вищими силами.

Лише у XVII ст. теоретичні побудови філософії історії здійснюють прорив за ідейні рамки ідеалістичних громадських моделей завдяки роботам Д. Віко, Ш. Монтеск'є, Й. Гердера та інші. Окрім теологічних концепцій виникають метафізичні і натуралістичні. Рушійні сили історії в метафізичній моделі – доля або трансцендентальна закономірність, в натуралістичній – дійсна природа людини з усіма її потребами, розвиток якої обумовлений різними чинниками. Так, у рамках цього підходу географічна школа брала за основу суспільного

розвитку географічне середовище і його окремі компоненти (клімат, ландшафт та інші). Демографічна школа акцентувала увагу на рості народонаселення, як домінуючому чиннику. Але усе це різноманіття міцно обґрунтовувалося на ньютонівській моделі, яка згодом послужила основою для формування класичної картини світу.

Класична картина світу з її пануванням механістичного детермінізму і «народженою за його образом і подібності» моделлю Всесвіту, як неживого, пасивного автомата, привели до культу раціональності в науці, де Розуму, позбавленому всіх особових характеристик, надавалася повна свобода, внаслідок того, що він єдине творіння, що претендує на головну роль у Всесвіті. Наука того часу не брала до уваги внутрішні тенденції, властиві природним системам, розцінюючи її прояви як опір і виклик правлінню Людини.

Прикладом перенесення природничонаукової картини світу на громадські теорії може служити монстр-держава Левіафан Т. Гоббса. Ця теорія відображає наукові настрої, і ідеї того часу. Для якісного прориву в розкритті суті законів соціального впорядкування знадобився час і теоретичні напрацювання в області проблем динаміки фізичних процесів і біологічної еволюції, що і знайшло своє віддзеркалення в термодинаміці і дарвінізмі. Але перш ніж перейти до аналізу цих теорій, необхідно помітити, що виникнення цих моделей стало можливим в контексті класичної картини світу, суть якої міститься в наступних постулатах:

1. Науку цікавить загальне, таке, що повторюється. Випадковість не береться до уваги. Вона сприймається як щось другорядне, як симптом недостатнього знання про той або інший процес. А оскільки особа в соціальному контексті є носієм випадку, отже, заперечується і вплив особи на макросоціальні процеси.

2. Основні положення науки повинні мати риси точного, математично вираженого знання, що спричиняє за собою домінування кількісних і експериментальних підходів. Передусім, це проявляється в поясненні соціального цілого як суми частин.

3. Неврівноваженість і нестійкість – явища негативні, які тягнуть за собою руйнівні наслідки і як наслідок – наука повинна прагнути відкривати закони стійкого і рівноважного розвитку систем різної природи, у тому числі і суспільства. Звідси – абсолютизація причинно-наслідкових зв'язків, порушення яких трактувалося як щось другорядне, що виходить за рамки наукових досліджень.

4. Розвиток систем носить лінійний характер і описується як поступальний, без альтернатив. Якщо ж відхилення від лінійної моделі і спостерігаються, то вони поглинаються магістральним потоком подій. У цьому контексті виникають лінійні моделі управління соціальними системами, які описуються за схемою: дія, що управляє, – результат.

5. З жорсткого детермінізму класичної механіки витікає можливість прогнозу в розвитку систем на тривалий час, а, отже, системам можна нав'язувати шляхи їх розвитку.

Виникнення в XIX столітті термодинаміки і дарвінізму сприяло тому, що з'явилася якісно нова модель світовпорядкування: від розуміння Універсуму «складного як машина» до осмислення складності ідентичного організму. У потенційній формі подібна перестановка світоглядних акцентів містить в собі методологічні підстави для появи сучасної постнекласичної картини світу.

Надалі позначилося основне протиріччя між фізичною (термодинамікою) і біологічною (дарвінізмом) моделями розвитку. У фізичній моделі принцип Карно-Клаузіуса передбачає неминучу дезорганізацію, розпад первинної структури системи. Необхідно помітити, що «у разі відкритих систем поняття «тепло» слід використовувати з великою обережністю, оскільки при перенесенні речовини через кордон системи разом з ним переноситься і енергія» [6, 44-45].

Говорячи про взаємодію систем різних типів складності з середовищем, не можна не згадати про таке поняття як «ентропія». Скорочене формулювання другого початку термодинаміки свідчить, що ентропія системи може тільки зростати або залишатися постійною. Таким чином, ріст деієрархізації структури характеризував стан закритої системи, наданої самій собі. Якщо виходити з цієї точки зору, то без підживлення енергією (теплом) ззовні, рано чи пізно, настане теплова смерть будь-якої структури, включаючи і Всесвіт. Статистичний підхід Больцмана до процесів ентропії показав, що з точки зору вірогідності порядок в системі тим вище, чим меншим числом способів він досяжний [5, 113]. Ріст ентропії, і пов'язане з ним збільшення хаотичності досягається великим числом способів, отже, ентропія вказувала на велику вірогідність деградації в розвитку закритих систем.

Найважливішою характеристикою становлення таких систем є процес деієрархізації – розпаду високоорганізованих структур на менш складні у бік однорідності. Прагнення систем до ускладнення (в ході ієрархізації) або спрощення

(в процесі деієрархізації) обумовлене прагненням «до досягнення максимальної стійкості по відношенню до можливих флуктуацій зовнішнього середовища» [4, 118]. Якщо розглядати всесвіт як закриту систему (що і робила класична наука), то вона розвивається, як вже було сказано, у напрямі теплової смерті – свого, як тоді вважалося, неминучого результату.

Дарвінізм зі своєю еволюційною теорією передбачав всесвіту абсолютно іншу долю: хід еволюції походить від простого до складного, від нижчих форм життя до вищих, від недиференційованих структур до диференційованих. Подібна динаміка обумовлена здатністю біологічного середовища адаптуватися до оточення, по відношенню до якого вона завжди відкрита. Ріст складності організації в дарвінівській моделі не має кінця. Таким чином, в науці позначилося яскраво виражене протиріччя: між фізичною (термодинаміка) і біологічною (дарвінізм) картинами світу. Перша парадигма пророкувала усьому неминучий розпад, друга, навпаки, нескінченне ускладнення.

Зі сфери природознавства звернемося в область соціально-гуманітарних наук і спробуємо проаналізувати вплив цих моделей на суспільні теорії.

Наукове знання про суспільство спочатку формувалося як знання про принципи соціального порядку, громадської динаміки, оптимального світопорядку. Такий напрям соціальним і історичним теоріям було задано еволюційною проблематикою. О. Конт, який вважається «батьком» соціології, назвав свою програму соціальною фізикою, запозичивши свій термін у Сен-Симона. Подібне формулювання було обумовлене відмовою від спроби описати соціальні закони за допомогою філософії, а використовувати загальнонаукову методологію. Іншими словами, О. Конт поклав в основу своєї теорії науковий факт, ігноруючи трансцендентні причини. Проте, мислителі, що стояли у витоків наукової соціології, не змогли у своїх дослідженнях уникнути протиріччя в спрямованості соціальної еволюції, що склалося в полеміці між дарвінізмом і термодинамікою. Методологічна модель біологічної еволюції в роботах О. Конта, Е. Дюркгейма, Г. Спенсера лежить в основі розвитку соціуму, яка розглядає соціальну структуру як організм. Це є прогресивним явищем в порівнянні з моделлю Т. Гоббса, який надавав соціуму суто механістичні риси.

Так, Е. Дюркгейм виділяє типи суспільств згідно з особливостями тих взаємодій, які створюють структурну кооперативність усередині соціальної системи. Примітивному типу відповідає механічна солідарність, класичному суспільству

властива органічна солідарність, в основі якої розподіл праці, взаємодія і взаємодоповнюваність великої різноманітності ролей і занять.

К. Маркс з ідеєю соціально-економічних формацій, заснованої на принципі стадіального ускладнення і поступального еволюційного розвитку, розглядав розвиток суспільства як процес ускладнення, диференціації, переходу від статички до динаміки. Традиційна теорія (діалектична концепція Г. Гегеля і К. Маркса) розглядає розвиток як процес переходу від одного порядку до іншого, тоді як «будь-який процес розвитку неповторюваний. Він і тільки він є істинною реальністю, а схеми описують зміну формацій, – лише відображення деяких ідей, вірних стосовно окремих випадків і помилкових в застосуванні до інших» [7, 69]. Необхідно підкреслити, що концепціям соціальної еволюції іманентно властива прагнення до гомеостазу, а також, незважаючи на відмову від ідеалізму, опис кінцевого стану, до якого еволюціонує суспільство, яке нагадує рай. Зрозуміло, що після досягнення цього стану термін «розвиток» втрачає свою динаміку і значення. «Марксистське суспільствознавство намагалося здолати фаталізм і лапласівський детермінізм в поясненні суспільних явищ і закономірностей, піднімаючи це пояснення до визнання складнішої, ймовірно-статистичної їх природи» [1, 60]. Послідовно це завдання не було вирішене: марксистська концепція закону містить в собі внутрішнє протиріччя, яке і визначило її долю.

Отже, розвиток в концепціях прибічників класичної парадигми закінчується деяким стійким станом соціуму, який можна розцінювати як ідеальний. Подібне бачення фіналу світовпорядкування є накладенням термодинамічної моделі на суспільні явища. У чому ж конкретно полягають прояви «термодинамічного підсумку» еволюції суспільства в класичному суспільствознавстві?

Найяскравіше, цілісно і послідовно концепція «термодинамічної рівноваги» виражена у Г. Спенсера. Для нього структура суспільства, за своєю природою, аналогічна організму, звідси слідує і здатність соціального організму до адаптації (як у біологічних систем). Увесь соціогенез, для Спенсера, – серія таких прогресивних адаптацій із зовнішнім світом за допомогою змін у внутрішній структурі громадської системи через збільшення різноманітності. Але, вдало пристосувавшись до впливу ззовні, система, в принципі, стає замкнутою у своєму апогеї «благополучного» стану. Як не парадоксально, але система, у тому числі і цивілізація, досягши свого розквіту приречена на згладжування внутрішньої різноманітності, потім на розпад і деградацію, оскільки суспільство – відк-

рита система і тривалий час без обміну із зовнішнім середовищем енергією, речовиною, інформацією свою стабільність і стійкість зберегти не може.

Надалі ідеї соціологічного еволюціонізму Г. Спенсера були покладені в основу теоретико-методологічного синтезу соціального знання, розробленого Т. Парсонсом. Він також висуває на перший план здатність системи до адаптації, але найбільш загальною і фундаментальною властивістю цієї системи він визначає взаємозалежність частин і змінних. Для Т. Парсонса, взаємозалежність компонентів структури виступає як порядок, супротивний випадку і нестабільності. Таким чином, принцип рівноваги в концепції Парсонса виступає як основний у функціональній природі суспільства і розглядається ним як порядок, що самопідживлюється.

Одним з напрямів, що продовжує розробляти тему кінцевого гомеостатичного ідеального стану суспільства в соціології XIX століття, став так званий сциєнтистський утопізм. Це різновид соціальної утопії був викликаний до життя вірою в те, що саме науковий прогрес здатен і повинен вивести соціогенез на деякий суператтрактор.

Таке розуміння еволюції суспільства виправдовує давно відому приказку «мета виправдовує засоби», тобто для досягнення кінцевої точки шляху варто йти вперед, не дивлячись на складнощі і засоби, якими ці труднощі долаються. Приклад тому – утопічна ідея комунізму і те, що було принесено в жертву для досягнення цього ідеального стану. Історичний прогрес в тлумаченні прогресистів уявляється як безглуздий процес, оскільки «скільки мотузці не витися», а кінець все одно – світле Майбутнє, урочистість Прогресу, де втілюються мрії людей про вічне життя в Раю, створеному людським Генієм (уявлення Кондорсе).

Еволюційні теорії висувають на перший план соціального порядку Утопії три принципи: рівноваженість, стабільність, ізолюваність від негативних впливів ззовні завдяки досягненню оптимальної збалансованості між структурою і навколишнім світом. Диференціація в прибутках, розподіл праці, рівний рівень життя, ведуть до того, що структура системи стає однорідною і як наслідок, – таке суспільство упирається в еволюційну безвихідь. Воно існує тільки в ім'я самозбереження, тобто збереження повної самототожності, абсолютного гомеостазу. Це суспільство, в якому домінує статична мораль, з жорстко обмеженою автономією членів суспільства, з яких воно складається, що неминуче спричиняє за собою дегуманізацію особи в її історичному контексті («гвинтик» в гігант-

ському механізмі). Але організми і людські спільноти – дуже різні типи систем. «Фашистські співтовариства по режиму свого функціонування ближче до організмів і тому не можна вважати збігом, що диктатори любили використовувати метафору суспільства як живого організму» [2, 134]. Стає зрозуміло, що соціальному прогресизму не вдалося уникнути «термодинамічних пасток». Термодинаміка, описуючи фінал всесвіту, далека від ідеалізму соціальних утопістів. Фізична модель XIX століття називала кінцевий стан не раєм, а «тепловою смертю».

Описуючи прогрес соціальних систем в категоріях «рівноважність», «стабільність», «гомеостаз», соціологам XIX – поч. XX століття так і не вдалося викласти послідовно у своїх вченнях жодну з двох моделей еволюційного розвитку (фізичну і біологічну). Іншими словами, ними не був знайдений вихід з логічної безвиході, що створився в результаті існування термодинаміки і дарвінізму. Але в той же час, уявлення про взаємопереходи порядку і хаосу, рівноваги – нерівноважності, стабільності – нестабільності в тій або іншій мірі були представлені в основних концепціях, що відображають стан наукового знання того часу про природу соціуму.

На наш погляд, в теоріях прогресивних еволюціоністів міститься інтуїтивне передчуття можливості поєднання і взаємодоповнення біологічною і фізичною моделями еволюції всесвіту. У світлі сказаного колишні теорії суспільного розвитку вимагають серйозного перегляду і трансформації по крайній мірі в двох відношеннях: по-перше, слід відмовитися від ідеї довготривалої детермінації в історичному процесі і не зводити в абсолют історичну неминучість, закономірність; по-друге, необхідно переосмислити принцип лінійного розвитку соціальної системи і історичного процесу взагалі.

Термодинаміка і дарвінізм підготували ґрунт для виникнення через декілька десятиліть нового напрямку – синергетики, яке науковим шляхом довело можливість і необхідність синтезу біологічної і фізичної картин світу, у рамках якого виникає якісно новий підхід до розуміння проблеми соціального розвитку, що уявляє історичний процес в нерозривній єдності з еволюцією всесвіту, а сам розвиток, як чередування процесів ієрархізації і деієрархізації, зміни періодів стабільності і нестабільності. У контексті синергетичного розуміння реальності всесвіт, самоорганізовуючись, безперервно народжується і гине, стаючи при цьому усе більш живим. Синергетичний підхід стосовно історичного процесу доводить, що кожна епоха є не лише «сходінкою» до майбутніх, досконаліших

станів буття, але і абсолютною самоцінністю, оскільки є неповторною соціокультурною цілісністю.

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The role of intestinal dysbiosis in infringement of the function of the liver of rats after antibiotic therapy

Abstract. In experimental work on rats was shown that antibiotics with the most pronounced hepatotoxic effects contribute more to the development of dysbiosis of the colon and to an increase in serum urease activity. On the basis of the results obtained, an assumption was made of the hepatotoxic effect of urease on the pathogenic microbiota of the intestine.

Keywords: antibiotics, dysbiosis of intestinal, urease, liver.

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Роль кишечного дисбиоза в нарушении функции печени крыс после антибиотикотерапии

Аннотация. В экспериментальной работе на крысах показано, что антибиотики с наиболее выраженными гепатотоксическими эффектами в большей степени способствуют развитию дисбиоза толстой кишки и повышению активности уреазы в сыворотке крови. На основании полученных результатов высказано предположение о гепатотоксическом действии уреазы патогенной микрофлоры кишечника.

Ключевые слова: антибиотики, дисбиоз кишечника, уреазы, печень.

Антибиотикотерапия является неотъемлемым звеном современных схем лечения многочисленных заболеваний, но, к сожалению, с целым рядом побочных токсических и аллергических эффектов [1]. К негативным последствиям приема антибиотиков относится и развитие кишечного дисбиоза, который при нарушениях функции печени распространяется на другие органы [2]. Усиленную контаминацию патогенными бактериями с одновременным снижением численности пробиотической микрофлоры при дисбиозе можно зарегистрировать при помощи уреазы, продукция которой является маркером целого ряда патогенных микроорганизмов. Уреазы выступают в роли активатора клеток моноцитарно-макрофагального ряда, используя механизм, независимый от липополисахаридов бактерий, а также модулятора иммунных воспалительных реакций, индуцирует экспрессию интерлейкина 2, интерлейкина 8 и фактора некроза опухолей. Кроме того, образованный под действием уреазы аммиак способен инициировать генерацию супероксиданиона и синглетных кислородных радикалов нейтрофилами, приводя к «кислородному взрыву» в тканях и органах [3].

Несомненно, что агрессивная уреазы патогенных бактерий кишечника, попадающая с током крови в печень, не может не влиять на функциональные показатели этого дезинтоксикационного органа. Но в настоящее время вопрос о роли уреазы в нарушении функции печени после приема антибиотиков освещен недостаточно.

Изложенное определило цель работы – исследовать зависимость нарушения функциональных показателей печени крыс от степени развития кишечного дисбиоза и активности уреазы после приема антибиотиков.

Материалы и методы исследования. Проведены две серии экспериментальных исследований на крысах линии Вистар. В 1 серии использовано 40 самцов месячного возраста средней массой $40 \pm 4,5$ г., распределенных на 5

равных групп: интактная и 4 группы, получавших различные антибиотики (таблица 1).

Исследования во 2 серии проведены на 18 самках (10 месяцев, средняя масса 300 г), распределенных на 2 группы: 1-ая – контроль, 2-ая получала антихеликобактерный комплекс, назначаемый при инфицировании *Helicobacter pylori* (омепразол 1,33 мг/кг, амоксил 50 мг/кг и кларитромицин 7,5 мг/кг).

Таблица 1

Характеристика и дозы антибиотиков

Препарат	Группа	Доза, мг/кг	Производитель, страна
1 серия			
Цефикс	Цефалоспорин III поколения	20	«Интернешнл», Иордания
Сумамед	Макролиды-азалид (азитромицин)	25	«Плива», Хорватия
Амоксиклав	Пенициллин (амоксицилин) + ингибитор β-лактамаз (клавулановая кислота)	40	«Сандоз», Швейцария
Линкомицин	Линкозамиды	60	«Дарница», Украина
2 серия			
Омепразол	Ингибитор Н-К-АТФазы	1,33	ПАО «Фармак», Украина
Амоксил	Бета-лактамный антибиотик	50	ПАО «Киевмедпрепарат», Украина
Кларитромицин	Макролиды, линкозамиды	7,5	ПАО «Киевмедпрепарат», Украина

Дозировки и продолжительность введения антибиотиков рассчитаны в соответствии с рекомендациями разработчиков. Антибиотики вводили с питьевой водой с учетом дозы и количества потребляемой воды в течение 5 дней в 1 серии и 8 дней во 2 серии.

Все манипуляции с крысами проводили в щадящем режиме, не подвергая их стрессу и боли [4]. Эвтаназию животных осуществляли под тиопенталовым наркозом (40 мг/кг) через 5 дней после последнего приема антибиотиков путём тотального кровопускания из сердца. Собирали кровь, из которой получали сы-

воротку, а также выделяли печень и слизистую оболочку толстой кишки. В сыворотке крови определяли активность аланинаминотрансферазы (АлАТ) [5], щелочной фосфатазы (ЩФ) [5], эластазы [6] и уреазы [7], а также содержание триглицеридов [5]. В гомогенатах печени и слизистой оболочке толстой кишки (50 мг/мл 0,05 М трис-НСI рН 7,6) определяли активность уреазы и лизоцима, по их уровню рассчитывали степень дисбиоза по Левицкому [7]. Статистическую обработку полученных результатов осуществляли использованием t-критерия Стьюдента [8].

Результаты и обсуждение. Представленные в таблице 2 результаты показывают значительное увеличение активности уреазы во всех исследуемых объектах после приема антибиотиков. Так, в слизистой оболочке толстой кишки крыс цефикс повысил активность уреазы на 73,2 %, сумамед – на 46,9 %, амоксиклав – на 32,1 %, линкомицин – на 116,3 % и антихеликобактерный комплекс – на 130,1 %. Эти данные свидетельствуют об усиленном размножении патогенной микробиоты в слизистой оболочке толстой кишки после антибиотикотерапии. Одновременно повысилась активность уреазы и в сыворотке крови. Наиболее выраженные изменения отмечены после введения крысам линкомицина (на 83,5 %) и антихеликобактерного комплекса (на 79,7 %).

Таблица 2

Активность уреазы в толстой кишке, сыворотке крови и печени крыс после применения антибиотиков

Группы крыс	Слизистая оболочка толстой кишки, мк-кат/кг	Сыворотка крови, нкат/л	Печень, мк-кат/кг
1 серия			
Интактная,	2,09 ± 0,41	0,91 ± 0,07	0,48 ± 0,05
Цефикс, 20 мг/кг	3,62 ± 0,35 p < 0,02	1,48 ± 0,16 p < 0,01	0,75 ± 0,09 p < 0,05
Сумамед, 25 мг/кг	3,07 ± 0,29 p < 0,05	1,30 ± 0,18 p > 0,05	0,65 ± 0,10 p > 0,1
Амоксиклав, 40 мг/кг	2,76 ± 0,21 p > 0,05	1,08 ± 0,09 p > 0,05	0,49 ± 0,05 p > 0,2

Линкомицин, 60 мг/кг	4,52 ± 0,37 p < 0,001	1,67 ± 0,11 p < 0,001	0,76 ± 0,11 p < 0,05
2 серия			
Интактная	1,76 ± 0,14	0,74 ± 0,06	0,21 ± 0,02
Омепразол, 1,3 мг/кг амоксил, 50 мг/кг кла- ритромицин, 7,5 мг/кг	4,05 ± 0,38 p < 0,001	1,33 ± 0,09 p < 0,001	0,38 ± 0,02 p < 0,001

Примечание: p – достоверность отличий между показателями в интактной и опытной группах

В печени крыс сумамед и амоксиклав не вызвали достоверного повышения активности уреазы ($p > 0,1-0,2$), тогда как после применения цефикса, линкомицина этот показатель увеличился в 1,57 раза ($p < 0,05$). Курс антихеликобактерной терапии вызвал повышение активности уреазы в печени крыс в 1,81 раза ($p < 0,001$).

Обобщая результаты таблицы 2, необходимо отметить, что активность уреазы наиболее значительно повысилась в слизистой оболочке толстой кишки, сыворотке крови и печени крыс после курсового введения линкомицина и антихеликобактерного комплекса. Исследования Е. И. Цирюк подтверждают развитие дисбиоза в желудке крыс после длительного применения омепразола, компонента антихеликобактерной терапии [9]. Применение амоксиклава не вызвало существенного изменения активности уреазы в исследуемых тканях, а введение сумамеда повысило этот показатель минимально.

Результаты исследования сыворотки крови экспериментальных животных, приведенные в таблице 3, характеризуют состояние гепатоцитов (активность аланинаминотрансферазы АлАТ и щелочной фосфатазы ЩФ), липидный обмен (содержание триглицеридов) и степень воспаления (активность эластазы). Курсовое введение препаратов 1 серии, за исключением амоксиклава, привело к достоверному повышению активности АлАТ: после применения цефикса на 31,4 %, сумамеда – на 27,1 %, линкомицина – на 64,3 %, антихеликобактерной терапии – на 50,0 %. Амоксиклав вызвал незначительный (на 18,6 %, $p > 0,2$) рост активности этой трансаминазы (табл. 3).

Наряду с повышением активности АлАТ в сыворотке крови крыс отмечен существенный рост и другого «печеночного» маркера – активности ЩФ. Введение цефикса повысило активность этого фермента на 80,1 %, сумамеда – на

27,9 %, амоксиклава – на 12,9 %, линкомицина – на 49,8 %, антихеликобактерного комплекса – на 59,3 % (табл. 3).

Применение антибиотиков во всех случаях привело к нарушению липидного обмена, о чем свидетельствовал рост уровня триглицеридов в сыворотке крови животных. Так, в 1 серии этот показатель повысился в среднем более чем на 70 % после курса цефикса, амоксиклава и линкомицина. В сыворотке крови крыс, получавших сумамед, отмечен менее выраженный рост содержания триглицеридов – на 38,9 %. Курс комплекса антихеликобактерной терапии увеличил уровень триглицеридов в сыворотке крови на 41,1 %.

Таблица 3

Биохимические показатели в сыворотке крови крыс после применения антибиотиков

Группы крыс	Активность АЛТ, мк-кат/л	Активность ЩФ, мк-кат/л	Содержание триглицеридов, ммоль/л	Активность эластазы, мк-кат/л
1 серия				
Интактная	0,70 ± 0,08	4,12 ± 0,13	0,90 ± 0,06	125,4 ± 3,3
Цефикс, 20 мг/кг	0,92 ± 0,06 p < 0,05	7,42 ± 0,34 p < 0,001	1,54 ± 0,15 p < 0,002	95,9 ± 3,8 p < 0,01
Сумамед, 25 мг/кг	0,89 ± 0,03 p < 0,05	5,27 ± 0,22 p < 0,01	1,25 ± 0,14 p < 0,05	108,7 ± 6,4 p < 0,05
Амоксилав, 40 мг/кг	0,83 ± 0,02 p > 0,2	4,65 ± 0,17 p < 0,05	1,60 ± 0,17 p < 0,002	102,7 ± 7,8 p < 0,02
Линкомицин, 60 мг/кг	1,15 ± 0,05 p < 0,001	6,17 ± 0,51 p < 0,002	1,59 ± 0,20 p < 0,01	101,4 ± 2,7 p < 0,01
2 серия				
Интактная	0,38 ± 0,03	0,91 ± 0,08	1,12 ± 0,14	140,5 ± 8,9
Омепразол 1,3 мг/кг амоксил, 50 мг/кг кларитромицин 7,5 мг/кг	0,57 ± 0,04 p < 0,002	1,45 ± 0,12 p < 0,002	1,58 ± 0,18 p < 0,05	177,2 ± 5,7 p < 0,01

Примечание: p – достоверность отличий между показателями в интактной и опытной группах

Активность лейкоцитарной эластазы, отражающей степень воспаления в организме, была достоверно снижена после введения антибиотиков в 1 серии.

И, напротив, применение антихеликобактерного комплекса вызвало увеличение активности эластазы в сыворотке крови крыс на 24, 4 % ($p < 0,01$, табл. 3).

Таким образом, проведенные исследования демонстрируют, что применение линкомицина и антихеликобактерного комплекса наиболее существенно нарушают функциональные показатели печени, а амоксилав и сумамед оказывают минимальное воздействие на эти параметры (табл. 3).

На рисунке 1 представлены расчетные данные степени дисбиоза толстой кишки, повышения активности уреазы в печени и активности АлАТ в сыворотке. Из приведенных данных видно, что чем выше степень дисбиоза толстой кишки после приема разных антибиотиков, тем выше активность АлАТ в сыворотке крови и тем выше активность уреазы в печени и наоборот. Самыми агрессивными препаратами по результатам нашего исследования оказались линкомицин и антихеликобактерный комплекс, а наиболее щадящими – амоксилав и сумамед.

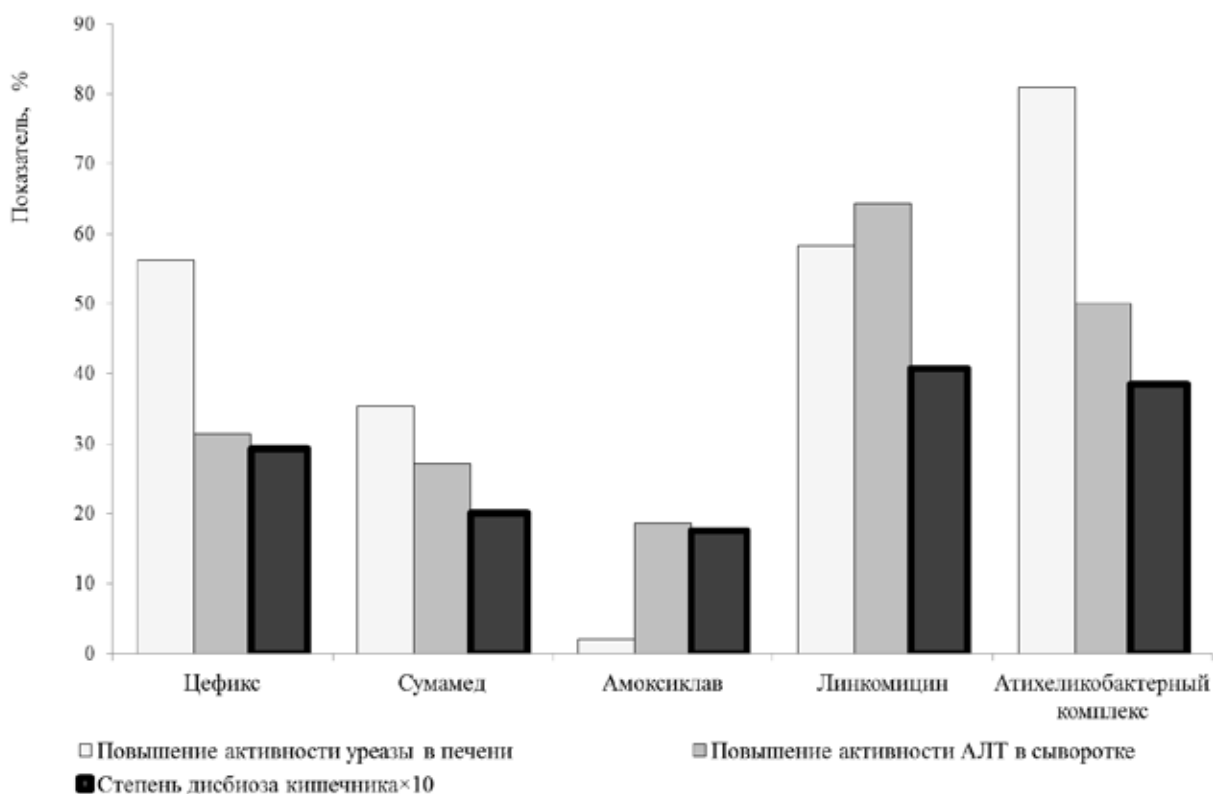


Рисунок 1. Влияние антибиотиков на степень дисбиоза кишечника, повышения активности уреазы в печени и повышения активности АлАТ в сыворотке крыс

На основании этих результатов можно предположить, что уреазы патогенных бактерий толстой кишки, попадая с кровью в печень, оказывает токсическое влияние на функциональную активность гепатоцитов. Известно, что развитие дисбиоза и рост абсолютной численности токсикогенных штаммов негативно влияет на все системы и органы [10] за счет повышенной концентрации микробных экзо- и эндотоксинов [11, 12], к которым, по нашему мнению, можно отнести и уреазу.

Таким образом, проведенные исследования позволили сделать предположение о гепатотоксическом действии уреазы микробиоты кишечника после антибиотикотерапии. Важно подчеркнуть, что курс амоксициллина или сумамеда вызывает минимальные изменения как дисбиоза кишечника, так и нарушения функции гепатоцитов.

Поскольку не существует других препаратов, способных так мощно и быстро справиться с инфекцией, как антибиотики, полученные результаты диктуют необходимость поиска эффективных протекторных средств для сохранения микробиоценоза кишечника на фоне терапии антибиотиками.

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Wiki based Academic English teaching experience: from creation of wiki site to feedback collection

Abstract: The article reflects the practical experience of enhancing the process of Academic English teaching to undergraduate students by means of wiki sites. According to the law the system of Russian higher education is to incorporate information communication technologies in order to optimize the educational environment though the process is challenging and decentralized. Consequently the given article sets the aim to carry out the theoretical analysis of the integration scheme of blended learning into the curriculum and empirical survey to confirm the efficiency of the project. The article contains a detailed description of the wiki based academic writing teaching experience, its mission and respondents' feedback gained via quantitative and qualitative research methods. Based on the interviews, questionnaires and observation, it has been found out, that the introducing wiki sites as a collaborative tool is subject to some criticism along with numerous benefits, which are also reflected in the results and findings of the study.

Keywords: blended learning, wiki sites, Academic English teaching, peer to peer review.

1. INTRODUCTION

Implementation of various information communication technologies into educational process is complex and challenging thought it is very beneficial. When integrated into the learning process web tools are becoming essential modern professionals' learning tools. They assist traditional education, accelerate exchange of urgent information and provide free flow of feedback. However there are some issues that are controversial and slow down their use in teaching practice.

The main **purpose** of this article is to offer the way to enhance the process of Academic English language teaching by implementing an educational wiki site which will allow blended learning in peer to peer or teacher to student collaboration.

Improving the writing skills and acquiring English in the experimental groups the students are to use Wiki as means to prove the following hypothesis. **Hypothesis:** if the project of Wiki based teaching and learning is a success it will result in closer teacher-to student and peer-to peer cooperation, better Academic English (AE) results. In order to achieve the main aim **the set of goals** was set:

1. To create a platform for cooperation on the basis wiki site.
2. To provide the theoretical and empirical analysis of the project proposal.
3. To use the qualitative and quantitative methods of approving of the hypothesis.
4. To collect students' and teachers' feedback on this innovative cooperation.
5. To single out advantages and pitfalls if any.

While creating the wiki based Academic English teaching project, the possibility for massive education across borders and time zones has been taken into account when the students have the opportunity to share educational and cultural information and work under the project simultaneously via Google sites tools, which have a clear and user-friendly interface and free of charge use.

In general, it is promising as having the great potential while providing educational and peer to peer collaboration incentives. The leaders of the project (English language as a foreign language associate professors and teachers) accomplishing the role of a moderator have assigned responsibilities among the participants of a project team, appoint the students' responsibilities, and monitor the implementation of the project and meeting the deadlines.

2. BLENDED LEARNING IMPLEMENTATION IN NRU HSE

Once the educational information is transferred by means of information communication technologies we may come across electronic learning. E-learning makes use of various electronic technologies, forms and components as its primary means of learning and teaching (Rosenberg, 2001; Swan, Bowman & Holmes, 2003). Currently, educators across all fields use online training to teach in every sphere of competence forming and leading universities incorporate ICT into teaching process in higher education.

The National Research University Higher School of Economics (NRU HSE) along with solid Russian universities has launched the pilot project of the Open University has various information and communication technologies in use by means

of wiki sites, e-learning environment (LMS), and learners' groups in social networks, webinars, gamification, MOOCs etc.

According to classification of e-learning based on the amount of time the students spend on line (in percentage) for educational purposes (Smith & Kurthen, 2007) Web Technology (only fragmentary), Blended learning (45% of e-learning and 55% of face to face one), Hybrid learning (45-80% on line) and E-learning (more than 80% in real time on the network) we are inclined to think that the authority of HSE follows the blended learning strategy mostly.

ICT provides several advantages from the point of view of a teacher. In other words ICT encourages socialization, sharing, creativity, authenticity and collaboration (Peachey, 2014). Arranging teacher-student collaboration by means of ICT is fruitful.

Nowadays English language teachers are free to choose and use various teaching web based tools in teaching practice such as Vocgrabber, podcasts etc, a variety of learning environments like LMS, Coursesa, Moodle, etc., educational platforms for massive learning (MOOCs), or on line seminars or webinars or presentations (slide sharing), etc.

Computer assisted teaching helps deliver information and flip the class providing an easy access to the materials and possibility to store them. Provided the permission is given anyone may share the plans, slides, e-versions of elaborations.

Thus, the mentioned above web tools can cater for many learning aims and are becoming much more of a must have in blended learning.

3. METHODOLOGY

While caring out this project fourth generation evaluation principles were used (Mason, J., 2002). The semi-structured techniques and methods including focus groups (groups of students of various ages and teaching staff discussions), individual interviews were held and opinion polls were carried out to assess the common trends and views on the use of web tools in teaching practice.

The evaluation of wiki based learning efficiency and students' feedback was arranged. Being both a teacher and an evaluator the author of this article collected and interpreted the data received. In the assessing learning activities we focused on all findings and personal discoveries of all the participants concerning advantages and disadvantages of e-learning. Besides the author used interviewing and due to qualitative approach analyzed the results comparing them with the initial ones.

Along with qualitative some techniques of quantitative research of collecting numerical data to be transformed into usable statistics were put into practice. It was used to quantify attitudes and project participants' opinions to uncover general patterns, which can be relevant to efficiency of web tools use in teaching Academic English for writing purposes. Quantitative data collection methods included various forms of surveys – on-line surveys, paper surveys, face-to-face interviews; Google forms polls and systematic observations.

4. TEACHING ACADEMIC ENGLISH WRITING BY MEANS OF WIKI

4.1 Emerging and development of wiki

In connection with the emergence and wide application of wiki technology, modern ICT experts introduce the concept of "wikisation" of virtual space, which becomes a trend in the development of modern software training tools (Tsaturova I. et al, 2007). In the given article, the author considers an experimental use of a row of wiki based projects aimed at teaching and learning a foreign language using a wiki site created by the efforts of the author and students of the National Research University the Higher School of Economics Nizhny Novgorod.

For the first time, the term "wiki", meaning "fast" and borrowed in Hawaii, was used by W. Cunningham when creating the first platform for collaborating on a common WikiWikiWeb site in 1995. The most famous project with a wiki is Wikipedia, a fairly democratic explanatory dictionary that accepts articles from experts and various specialists (Voytovich, I., 2012).

When using a wiki site, which by definition is AA. Dragoon is a site or social service that allows its users to add, fix, delete its contents, and also to realize their joint projects, presentations and written works, in the process of teaching a foreign language, the authors of the material uploaded to the site become the trainees themselves. Given that this content becomes available to the entire world network, students are more responsive to the content selection and information processing. Consequently, the positive "feedback and praise" given by the teacher becomes more important than the mark to be given.

Despite the fact that the wiki site belongs to the technologies of fragmented electronic education, its use can be implemented both for single or several classes, and potentially completely replace the module of training. However, we must not forget that the process of learning a foreign language, by virtue of its acquiring, should not be based only on the use of the wiki environment. The wiki site will be

useful to a greater extent for the development of communication skills among learners, since the two modes of wiki functioning are active discussion in the language of a particular topic (real communication) and the creation by users of a common project or some joint written work (Dragunova, A., 2012).

Depending on the needs that arise during the course of studying a foreign language, more often an educational wiki site can be used to implement a high quality material that corresponds to the particular curriculum and serve the definite classroom purposes. The Google site wiki creation toolkit allows to upload various teachers' files of any format on the page of the site, as well as to use open access materials using hyperlinks without violation of intellectual property rights.

Thus, the wiki site can integrate the following modern teaching tools: test masters; electronic libraries; on line dictionaries and glossaries; professionally oriented text and video materials; academic reading and writing guides; English for specific purposes resources etc.

Telecommunications technologies enabling students to participate in the dialogue of cultures by means of audio and video conferences (Nuzha, I., Smirnova, N., 2012).

To the mentioned above it is necessary to add that in the wiki environment there is also a wide use of all sorts of podcasts, digital multimedia files published in the global network with a certain regularity and with the possibility to get RSS by subscribing to them after formal registration. There can be audio, video, or any other format of files (images, texts, video or power point presentations, PDF). In turn, podcasts are divided into linguistic ones which form language skills, sociolinguistic enabling language learners to use linguistic means of communication in various situations with regards to the social context, socio-cultural containing information about the people, country, culture and the language identity and others (Dragunova, A., 2011). Adding such kind of podcasts to the wiki site, helps create an authentic atmosphere, also contributing to increased students' interest.

4.2 Creation of the first Wiki based sites for educational purposes in NRU HSE

The author of the article has created and used in teaching and learning practice correspondingly several wiki sites: #1 one for teaching Business English for specific purposes in 2010 (<https://sites.google.com/site/frolovanh>), #2 for university teachers, assistants, professors in the course of the training program on LMS use in

teaching practice in 2011 (<https://sites.google.com/site/lmsnnovgorod>), #3 for teaching English courses for the listeners of the President program for managing specialists in 2015 (<https://sites.google.com/site/presidentprogrammeprtfolios>).

To computer assist the academic discipline "Business English" the first wiki site (#1) was created, which contained educational materials, including texts, videos, interviews, authentic articles, on various topics such as Globalization, Brands, Counterfeit, etc. The structure of the site is as follows the main page is devoted to the glimpses of Great Britain and the educational tours supported by the reports of students participating in language internships. The subpages contained presentations being submitted in various years by 1st, 2nd and 3rd year students of different departments.

The wiki site for teaching staff of the university and students backed up the program of ICT development courses (#2) contained the list with the curriculum and the listeners of the course, video explaining new concepts, algorithms for working with LMS in terms of academic needs, home tasks and supplementary materials etc. The site (#3) for the students of the President Program stored the Personal and Professional Portfolios of the listeners of 2014-2015.

4.3. Universal wiki site for several Russian universities to assist English language learning

In September 2016 the concept of the new wiki based project was defined by the assistant professors of NRU Higher School of Economics and Penza State University. Its goal was to test the effectiveness of the wiki site in terms of unification of the contents which is used in forming the students' of geographically far located Russian universities language and information competencies, increasing their motivation for learning, creating conditions for the creative community and informal interaction of students from different cities. In other words, to create conditions under which students independently and willingly acquire the missing knowledge from different sources; learn how to solve global cognitive and practical day to day problems; improve communication skills, working in different groups; develop their research skills (the ability to identify problems, collect information, observe, conduct experiments, analyze, generalise); create an emotional bonds and informal relations with teachers.

To create a wiki site #4 (<https://sites.google.com/site/nnbridgetopenza>) Google Sites resources that allow you to create sites for any purpose and project were

chosen, since this platform is more accessible and user-friendly. What is particularly important, it does not require advanced knowledge in the field of programming and web design.

During the project, two topical issues for students were studied: "The Art of Management" on the basis of authentic articles from the Economist journal (Managing the Facebookers. Are managers born? etc.), and "Environmental Protection" on the basis of the Eden Project.

4.4 Wiki based project for teaching writing

Writing projects in English develops students' research and exploratory skills inspired by cognitive motives and interests. The task of a teacher is to form the environment which will provide necessary conditions for creativity. The issue that requires to be considered in project learning is the development of critical thinking. Students are given the ability to acquire knowledge in order to navigate in the educational space independently.

In order to support the Academic English for writing purposes for the fourth year students in particular, a brand new educational site (#5), which contains several pages on project proposals, on peer reviews, on presentations and manuals and tutorials on successful writing production, was created which both students and teachers could use at convenient time for educational information search or peer assessment. (<https://sites.google.com/site/academicwritingprojectproposal>).

The exam results of the groups taking part in the experiment have justified the hypotheses that web tools can optimize the process of education and that Wiki enables project-based learning in real time, when all participants distantly can cooperate in teamwork. Project based learning via wiki sites highlights the idea of students' collaboration and cooperation during the learning process. It creates favourable environment for the development of their various qualities. Necessary autonomy and initiative in education is evoked. It motivates to develop personality and the ability of team work along with responsibility for the group. (Frolova, N., 2016) Moreover, wiki spaces allow both formal and informal communication in different role models and dimensions like (a student - a student, a student - a teacher, a teacher- student groups).

5. Conclusion and the findings of the research

The experimental use of wiki sites in the process of AE teaching and learning which started in 2010 up to the present time has resulted in the creation of 5

educational wiki sites by the author of the article, thorough literature review and both theoretical and empirical studies. Feedback collection by the above mentioned research methods led to the findings assessment.

According to the conducted analyses of the results of using wiki sites in teaching Academic English and AE Writing to university students in particular the hypothesis of its efficiency as a web tool supporting teaching and learning of English has been proven. Though there was some criticism in the respondents' answers showing that not all professional teachers are very optimistic about web tools and implementation of blended-learning, primarily elderly ones usually resist to create web based English courses, usually due to the lack of ICT knowledge or computer skills, considering the whole idea of distant education unreasonable and impractical. The comment by a 61 year old English teacher «What is the use of these technologies? I can do without them, by means of face to face session and working at the blackboard».

The students' feedback seems more optimistic and focuses on benefits mostly such as the following:

- blended - learning proves to be more individualized letting use the appropriate pace and time frames;
- cost - effective and time saving as it allows to reduce or eliminate travel costs and commuting time;
- unlike classroom training, which requires the presence of trainers each and every time the course is supposed to be delivered;
- web platform on the basis of wiki or LMS can be developed once and used multiple times for the training requirements of various audiences;
- easy access to all the materials which are open to various groups of English language learners due the advent of authoring tools;
- universal coverage and possibility to be applicable worldwide.

In this way web based learning is significantly advantageous compared to the classroom Academic English learning only. The table given below provides official statistical prove for the efficiency of teacher-student collaboration outside the classroom by means of web tools in particular. (Official statistics from the NRU HSE site on Dr Frolova's work with students <https://www.hse.ru/user/#tab-main>).

Table 1. The students' feedback on rating of teacher-student extracurricular collaboration and personal relations

Department	Number of respondents	Teacher-student interrelation (average score)	Extracurricular teacher-student collaboration (average score)	Deviation
Math and Soft Engineering	17	4.82	-	0.38
Math and Soft Engineering	16	-	4.75	0.56
Law	33	4.45	-	0.96
Law	32	-	4.38	0.93
Management	18	4.83	-	0.37
Management	17	-	4.65	0.48

Thus, the statistics of the polls (n=49) has proven the positive students' feedback (more than 70% of the respondents) on incorporation of web based course of Academic English, which led to creation of a platform for teacher-to students and peer to peer cooperation on the basis of wiki sites.

Out of 49 NRU HSE respondents 49 were the first year students, most of whom were girls (about 90%) the majority of students questioned about the advisability of using wiki in the future study answered that the application of the wiki made the English courses more convenient and effective, and it is likely to be applied in the further study of the language, provided that such model of electronic education as a wiki is constantly updated and improved.

Among the advantages of studying foreign languages via a wiki site, the students have especially highlighted the following advantages of wiki sites:

- Comprehensive impact on various perception channels by using text, sound, animation, video (62% of the respondents);
- the possibility of improving reading, listening, speaking and even writing skills and consequently the general language level (61% of all the students).

All the findings of the experimental education courses on AE and the results of the survey lasting for several years confirm the fact that the efficiency of the given project has been approved by both the theoretical and empirical data collected by means of the qualitative and quantitative methods of collecting students' and teachers' feedback on this innovative cooperation. The bases for cooperation contains 5 wiki sites with narrow educational purposes though it is open to development updating and improvement it is still a promising area of research and calls for further surveys to be done.

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