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Section 1. Higher Education

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The results of the study motivation for the research work of future teachers of basic military training

Abstract: It is possible to tell that the problem of development of motivation in professional to preparation in realization of the approach focused on the personality is a basis of activity of the teacher. Importance of this problem it is connected with formation research interest and motivation of students and its preservation in sufficient level at students.

Especially, it is a problem becomes complicated with features of the specialty " basic military training". In article research of research motivation of students, that is future teachers of "The basic military training" is described results. The author in the research work carried out the test for determination of feature of formation educational motivations offered N. Ts. Badmayeva and questioning. Research it is carried out to students of the Kazakh office 2 and 3 courses. Results of research 2 and 3 courses show features in structure of motivation of students, and with it is connected engenders opportunity to choose exact, special methods to teachers.

Keywords: motivation of educational activity, research work of the student, independent work of the student, training of teachers of basic military training

Introduction

In contents of normative and program documents of education it is described that in what labor branch wasn't, from them, in education not only it is necessary to give youth a data set also it is necessary to create competences independently successful the organization of activity. Generally the essence of educational processes it — to dominate self-education of students and to form "vital" educational skill of future expert. During aforesaid the main action of the teacher — the organization continuous training and ensuring the highest motivation of research work.

All it is known that movement force in any activity of mankind is its motivational party. The problem of motivation concerns to one of actual branches in science of psychology and management. In the present in circles use of active methods of training too the special attention is given on motivation.

Educational motivation — (from Latin "moveo" — to move, hype up) — the awakening process of productive cognitive activity trained in active assimilation the contents education [1, 18]. In works A. K. Markova to be told that, educational motivation system process and its main signs: an orientation, stability and increasing [2, 126–128].

Main part

For determination of feature of motivation to performance of research works of the students who are trained in "the Basic military training" and the effective organization of educational process of result of research it was carried out diagnostic work with students of the Kazakh office 2 and 3 courses.

In the course carrying out dough for the description of feature formation of educational

motives we leaned to dough offered N. Ts. Badmayeva [3, 151–154]. Students on the basis of the 5th mark system measures in this test for itself important and significant motives: 1 point minimum importance of motive, 5th point maximum importance of motive. At the same time, it is carried out the questioning made by G. K. Baymukasheva directed on definition research motivation [4, 32].

At the first stage research students answered the following questions. Only 40 students considered 100%.

For example: whether to a question "Often you go to library?" answers of respondents looked so:

— yes — 15%
— no — 65%
— I find it difficult to answer — 20%.

"What books or magazines you like to read answers to a question?": about cars — 18%, about fashion — 23%, about actors — 12%, detectives — 10%, aren't present — 32%, I find it difficult to answer — 18%.

"Would you like to open any news?":
— yes — 38%;
— no — 30%;
— I find it difficult to answer — 32%.

"Do you have concept about research work?":
— yes — 55%;
— no — 15%;
— I find it difficult to answer — 30%.

"In what subject you would like to write research work?"
— connected with military and fighting action — 29%;
— military psychology, behavior, prevention of a suicide — 23%;
— military discipline, etc. — 21%;
— I find it difficult to answer — 27%.

In the second stage of work conducted research on motivational system of students.

On the question "Whether Often You Are Engaged in Cogitative Activity with Long for Long Time (Some Hours)"

Course	Often	Sometimes	Very seldom
2 (20 students — 100%)	15	85	–
3 (23 students — 100%)	17	75	8

On a question «What of the following options you prefer when the question concerns on intelligence?»

Course	to be at a loss, but it-self to answer	differently	to take the ready answer from someone
2 (20 students — 100%)	20	60	20
3 (23 students — 100%)	8	62	30

Whether on a question «You read additional materials in a subject?»

Course	always	sometimes	very seldom
2 (20 students — 100%)	35	55	10
3 (23 students — 100%)	39	61	–

On a question «How sensitively you treat subjects connected from cogitative activity which is interesting to you?»

	2 course (20 students — 100%)	3 course (23 students — 100%)
a) from big sensitivity	15	88
b) differently	85	8
c) without sensitivity	–	4

Whether on a question «Often you ask a question of the teacher or to yourself?»

Course	often	sometimes	very seldom
2 (20 students — 100%)	35	55	15
3 (23 students — 100%)	13	66	21

On a question «What of the following answers the great interest to studying of a subject engenders?»

	2 course (20 students — 100%)	3 course (23 students — 100%)
a) news in a training material (new hundred-maintaining)	15	17
b) history of development of science	15	8
c) current achievements of science	15	26
d) practical importance research	10	26
e) kind of independent work	20	21
f) competition and creativity	25	–

If to analyze results of answers to questions, it is possible to see distinction between students 2 and 3 courses. Interests students of older years materials are connected with practice and current achievements more.

On a question «You like to solve what tasks?»

	2 course (20 students — 100%)	3 course (23 students — 100%)
a) lungs without algorithm	10	4
b) on algorithm the typical	–	15
c) demanding research	20	34
d) any	30	43
e) the difficult	35	4

Whether on a question «You enjoy after receiving new knowledge?»

Course	yes	no	Sometimes
2 (20 students — 100%)	55	10	35
3 (23 students — 100%)	70	4	26

On a question «For what it is necessary to perform research work?»

	2 course (20 students — 100%)	3 course (23 students — 100%)
a) for better assimilation knowledge	60	65
b) for receiving new knowledge	35	27
c) for performance training program	–	–
d) for repetition of a training material	–	–
e) for increase of educational estimates	5	8
f) for what?	–	–

It is possible to pay attention to one more interesting data. For example, whether on a question «It is interesting to you to be engaged from scientific activity?» most of students of two groups answered that only on occupations is interesting to them.

If to consider educational motives, among students 2 courses dominated the following systems of motives: from 20 students answers more 15th student were — the highest motives, 10–15 student — average motives, 9–4 student — motives of low level. Results of this dough were described by the following.
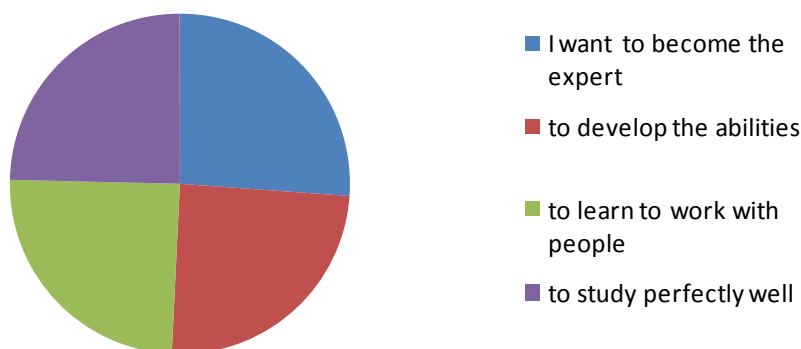
The highest motives

- I want to become the expert
- to develop the abilities
- to learn to work with people
- to study perfectly well

Figure 1. The highest motives the got 5 points among 20 students

Table 1 — Educational motives of the average level

Number of students	Motives
14	I study because to be pleasant my specialty
13	I entered the university, it is necessary to finish
13	the received knowledge me helps me to reach opportunity in sufficient level
12	to communicate with interesting people
12	to gain deep and fundamental knowledge
11	to provide benefit future professional activity
11	to be among the best students
11	that our group was the best in institute
11	to be dear person in educational collective
11	to lag behind the fellow students and not to be among backward
11	to continue study on the following of courses and to receive answers to specific study questions
11	that in the future to be engaged from scientific activity in the specialty

In comparison if to take the leading motives of students 3 courses, will be following in a way. Because of a large number of the participated students on research a scale of measurement of domination of motives was on another: on answers of 18 students motives who estimated on 5, read as the highest; and the having highest points 13–18 students describes motives the average level; in answers we met 12–7 students motives of low level, and they the smallest importance for groups has.

Motives

- for work with people
- to study perfectly well

Figure 2. The highest motives the got 5 points among 23 students

Table 2 — Educational motives of the average level

Number of students	Motives
1	2
13	I want to be the expert

1	2
13	to continue study on the following of courses and to receive answers to specific study questions
14	I want to use completely the skills and abilities on chosen specialties
14	I entered the university, it is necessary to finish
15	the received knowledge me helps me to reach opportunity in sufficient level
15	to gain deep and fundamental knowledge

Conclusion

In the conclusion results research, the second year of training is that intense stage in educational activity of the student who teaching and educational work in common move. When passing pedagogical courses formation to students of preparation for self-education and research scientific and search work is considered. Students receive the general preparation, their cultural requirements will be created, and it is considered finished process adaptation.

Third year of training — the beginning of specialization, a stage of assimilation of technology of professional activity, strengthening of interest in scientific activity, deepening of professional interest of the student and his development. Persistent need to specialization often leads to distribution of comprehensive area of interest of the personality. Usually, types of formation of the personality in higher education institution is defined by specialization factors.

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Integration of educational, scientific and innovation activities as a priority of higher education development in Ukraine

Abstract: In the paper is considered an analysis of international and national regulatory documents on integration of educational, scientific and innovation activities in a higher school. It is shown that the preparation of the modern graduate student must occur within a single education-research-innovation process of a higher educational institution in accordance with the innovation and integration vectors of economy and society development.

Keywords: Educational, scientific, innovation activities, higher educational institution, graduate student, higher education.

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Интеграция образовательной, научной и инновационной деятельности как приоритет развития высшего образования в Украине

Аннотация: В данной статье представлен анализ международных и отечественных нормативных документов по интеграции образовательной, научной и инновационной деятельности в высшей школе. Показано, что подготовка современного магистра должна осуществляться в рамках единого образовательно-исследовательско-инновационного процесса высшего учебного заведения в соответствии с инновационным и интеграционным векторами развития экономики и общества.

Ключевые слова: образовательная, научная, инновационная деятельность, высшее учебное заведение, магистр, высшее образование.

В современных условиях мощных глобализационных изменений образование, наука, инновации становятся теми определяющими факторами, которые призваны обеспечить инновационное развитие общества и ликвидировать значительное отставание украинской экономики от стран с развитыми инновационными системами.

Подписав Соглашение о партнерстве и сотрудничестве между Украиной и ЕС и утвердив в 1998 году Стратегию интеграции Украины в Европейский Союз [1], наша страна избрала курс на развитие национальной экономики по инновационной модели.

17 июня 2009 г. Верховным Советом Украины была принята «Стратегия инновационного развития Украины на 2010–2020 годы в условиях глобализационных вызовов», в которой отмечается, что наука, образование, инновации становятся сегодня все более заметными и определяющими сферами развития общества и государства, но существует большая пропасть между генерацией знаний и их использованием, что и приводит к значительному технологическому отставанию нашей страны от стран, входящих в инновационное ядро» [2].

Украина сейчас владеет мощным интеллектуальным ресурсом в виде национальной системы высшего образования, основу которой составляют классические университеты, но, как отмечают авторы национального доклада «Со-циально-экономическое состояние Украины: последствия для народа и государства» (под общей редакцией Гееца В. М. [3]), на сегодняшний день особого внимания заслуживает исследовательско-инновационная роль высших учебных заведений. О необходимости интеграции образовательной, научной и инновационной деятельности идет речь и в Левенском коммюнике Министров образования стран ЕС «Болонский процесс 2020 — пространство европейского высшего образования в новом десятилетии» [4], в котором отмечается, что в целях обеспечения устойчивого экономического подъема и развития динамическая и гибкая система европейского высшего образования должна стремиться к инновациям на основе интеграции между системой образования и исследовательской деятельностью на всех уровнях. Она должна быть основана на современных научных исследованиях и способствовать росту числа людей с исследовательской компетентностью и способностью к продуцированию и распространению инноваций.

Именно необходимость кардинальных изменений, направленных на повышение качества и конкурентоспособности образования в новых экономических и социокультурных условиях, ускорение интеграции Украины в международное образовательное пространство обусловили разработку Национальной стратегии развития образования

в Украине на период до 2021 года [5], которая основывается на рекомендациях Новой программы европейского сотрудничества в области образования и обучения «Образование и обучение 2020» [6], и одним из своих стратегических направлений видит развитие научной и инновационной деятельности в образовании, повышение качества образования на инновационной основе.

В мае 2015 года на открытой Google's он-лайн конференции «Education on Air» был представлен доклад «What are the skills of the future?», подготовленный специалистами Google и журнала The Economist, в котором, в частности, обнародованы результаты опроса руководства крупнейших бизнес-компаний на тему: "Какие из предложенных навыков на сегодняшний день являются наиболее важными для сотрудников вашей организации? Выберите до 3 вариантов ответа". Результаты опроса показали, что для реальной экономики сегодня наиболее востребованными навыками являются: решение проблем, командная работа, коммуникации, критическое мышление и креативность [7]. Поэтому, во всем мире сейчас уделяется внимание разработке новых инновационных подходов к обучению, учитывающих современные тенденции в экономике и обществе. Но, к сожалению, в отечественной системе образования целенаправленному овладению этими навыками XXI века почти не учат, хотя необходимо отметить некоторые положительные тенденции в реформировании украинского высшего образования, которые наметились в последнее время.

В первую очередь, это принятие нового Закона Украины «О высшем образовании» [8], который призван создать условия для подготовки конкурентоспособного человеческого капитала для высокотехнологичного и инновационного развития страны. Одной из основных задач высшего учебного заведения данный Закон провозглашает обеспечение органического сочетания образовательной, научной, научно-технической и инновационной деятельности, интеграция которых, в свою очередь, должна обеспечить подготовку специалистов инновационного типа.

Другой важный документ, способствующий превращению высшего образования в мощный интеллектуальный ресурс инновационного развития, это утвержденная Кабинетом Министров Украины Национальная рамка квалификаций [9], в соответствии с которой вводится новая структура квалификационных уровней высшего образования, которая предусматривает, в том числе и обязательное осуществление исследовательской и инновационной деятельности на седьмом (магистерском) квалификационном уровне.

Таким образом, именно образовательно-научные магистерские программы призваны создать то необходимое исследовательско-инновационное пространство, в котором научные интересы преподавателей и научные стремления студентов будут ориентированы на решение наиболее важных проблем высокотехнологического и инновационного развития.

Согласно докладу Всемирного банка о ситуации в образовании в странах Европы и Центральной Азии, переход от централизованной к рыночной экономике вызвал сильный рост потребности в специалистах, способных быстро обучаться, решать проблемы и добывать нужную информацию [10], поскольку за последние десятилетия в результате трансформации системы генерации и передачи знаний период "полураспада" компетентности, то есть снижение ее на 50% вследствие появления новой информации, по многим профессиям уменьшился до 5 лет (ежегодно в среднем обновляется около 5% теоретических и 20% профессиональных знаний) [11].

Итак, цель исследовательско-инновационной деятельности в образовании заключается в приобретении студентами функционального навыка исследования как универсального способа освоения действительности, развитии у них исследовательско-инновационного стиля мышления, активизации и утверждении их личностной позиции в будущей профессиональной жизни [12; 13].

Таким образом, переосмысление теоретико-методологических основ и научно-методических подходов к подготовке современного магистра, формирования его профессионализма и конкурентоспособности в соответствии с современными требованиями исследовательско-инновационного развития является сейчас одним из основных приоритетов в системе современного высшего образования Украины.

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The explication of professional thinking of the future mechanical engineers

Abstract: The article focuses on the problems of training specialists at universities. The paper is a great attempt at explaining the concept of professional thinking in terms of academic training for

future mechanical engineers. The author emphasizes the significance and importance of professional thinking development for future mechanical engineers, as modern societal trends require that academic education helped students develop their intellectual abilities and skills of active non-linear thinking.

Keywords: professional training, training process, professional thinking of the mechanical engineers, professional thinking components.

The problem. Every modern competitive expert is required to be able to think individually and outside of the box to predict results, be creative in any activity. Since the primitive form of thinking was identified through human actions, the successful professional activity of any expert requires cultivated professional thinking. Solution to this problem is of particular importance because of the deep economic crisis of our country and its technological lagging far behind the leading economic countries. There appears to be a contradiction between the objective societal and governmental demand for viable, skilled and self-cultivating engineers on the one hand, and their professional training on the other hand. It is obvious that modern engineering education is of reproductive nature, and thus, it overlooks its productive side, namely the development of professional thinking of future mechanical engineers.

The problem discussed is of particular relevance in view of modern globalization processes, where people choose innovative types of world development and the role of the personal factor becomes crucial in ensuring proper efficiency of social production.

The problem relies on theoretical and practical reasons such as insufficient study of theoretical issues related to the development of professional thinking of the future mechanical engineers. Of great significance is the necessity to review the meaning and structure of professional thinking of the future mechanical engineers. The development of the professional thinking of the future mechanical engineers within the system of engineering education is necessary due to the fact that a mechanical engineer will act as an inventor. Making inventions will require not only expert knowledge but cultivated professional thinking, rich imagination, deep feelings and strong will.

The research is relevant since it has been part of the academic research work "Leadership Development Methods for Humanitarian, Technical and Managerial Elite in the Information Society" conducted at the Department of Pedagogy and Psychology of Social System Management of National Technical University "KhPI".

The review of scientific papers on the problem suggests that the problem hasn't been properly studied by modern domestic and foreign authors. One of the relevant papers is "Innovative Thinking Development for Manufacturing Engineering Students in Educational and Informational Processes" by L. Shumelchyk [9, p. 569], which states that a future expert must have innovative and creative style of thinking since the society requires those engineers who can solve complex theoretical and practical problems. The author emphasizes that the prior goals of modern education include revealing of creativity, creating of optimal conditions for personal fulfillment, inculcating of innovative thinking to future professionals.

A multi-authored monograph under the editorship of O. Romanovskyi and O. Ponomarova states that it is important to develop "innovative and strategic thinking, resolution, strong denial of old stereotypes and readiness to be responsible for your own decisions, actions and their possible consequences" [5].

The problems of professional thinking and creativity have been described in the papers by G. Altshuller, V. Andronov, A. Brushlinskyi, G. Valiullina, J. Guilford, D. Kuhn, T. Gura, E. Iliin, V. Kremen, T. Kudryavtseva, S. Rubinshtein, S. Sysoieva and others. Psycho-pedagogical framework for creative personality development has been explored by B. Ananiev, L. Badanina, I. Beh, O. Vyhotskyi, V. Moliako, L. Sushchenko, T. Sushchenko, M. Cheremskyi and others.

The purpose of the paper is to explain the concept and to analyze the constituents of professional thinking of future mechanical engineers.

Materials and methods deal with planning of a strategy for training and development of future

mechanical engineers in view of modern globalization processes. This, in turn, requires knowledge and consideration of trends that outpicture the priorities of modern European technological world-view i. e. a metacultural situation that determines the main vectors of human progress.

According to J. Beh, modern civilization breeds two basic types of personality, a socially-oriented one and an egocentric one [2, p.14]. The egocentric personality of the future mechanical engineer will have "insufficient humanistic consciousness, limited personal meaning and value orientations and poor survival needs. As a result, a subculture emerges that is devoid of interethnic tolerance and humanistic dialogue" [2, p. 15].

To contribute to the rebirth of Ukraine our society expects the future mechanical engineers to perform the following major activities: executive production, production communication, creativity in professional practice and social production [4, p. 58]. Obviously, to be an expert nowadays it is not enough to perform only specific manufacturing operations and carry out instructions that altogether requires a whole range of specific knowledge, abilities, skills and qualities and is what the students are mainly taught to do.

Future mechanical engineers are trained to solve many production problems, and this means that the top-priority task of education is to foster a system of qualities essential for them to be professionals and pursue their professional careers in the future. The leading scholars such as G. Altshuler, V. Moliako, T. Kudriavtsev and others emphasize that the career of mechanical engineers is associated with scientific and technological achievements, inventions, design, rationalisations and responsibilities. Thus, their professional activity requires a creative approach to solving professional problems as well as advanced professional thinking. E. Milerian maintains that "the major constituent of the whole training process is creative imagination combined with thinking" [cited by 3, p. 42].

Once, the representative of modern European philosophy, R. Descartes said "I think, therefore I exist" [2], which means that being is thinking. This was the philosophy of mind that set a general guidance to educational and training processes to serve their fundamental purposes. According to J. Beh, the philosophy of mind has been replaced by a new philosophy where the categories of being, existence and mind are conceived as categories of values. The ideas of the latter must underlie an innovative approach to development of professional thinking of future mechanical engineers. At present, the future experts must be trained to adequately respond to the extremely complex challenges of modern production processes, to generate rational ideas to face those challenges, and to take ethical and moral responsibility for their professional activities.

As we know now, teachers hardly practice this approach in the professional training of future mechanical engineers. According to G. Egorova, the modern system of education has focused mainly on the development of memory and reproduction of huge amounts of accumulated knowledge and out-of-the-box solutions to standard tasks. This, according to L. Shumelchyk, does not contribute to the development of innovative forms of engineering students' thinking. As a result, modern mechanical engineers tend to have introspected inner world; they are not viable and competitive enough in the labor market and experience total spiritual serenity as a psychological condition and style of their life.

To single out the constituents of professional thinking of future mechanical engineers we must take into account the fact that habitually inherent to them are all types of thinking as one of the major categories of psychology. However, the career specifics of future mechanical engineers determines the types of thinking considered as professional thinking (fig. 1).

The problem of theoretical thinking development is essential for bringing up an expert who has a creative mind, who picks up deep and ontological connections between objects and phenomena and who can find generalized solutions to professional problems. Thus, theoretical thinking development is the key task in training future mechanical engineers. In his psychological studies V. Davydov identified three main components of theoretical thinking such as theoretical analysis, reflection and planning [6, p. 281].

Theoretical analysis helps identify the internal ontology which is a property of objects and phenom-

ena to put aside external non-essential features. In particular, the professional training of future mechanical engineers relies on theoretical analysis which teaches students to find general principles of design problem formulations and, correspondently,

the general ways or principles of solving the above problems. The general method or principle of solution is found through solving one or two problems (at spot) and then carrying over the solution to the whole class of similar problems.
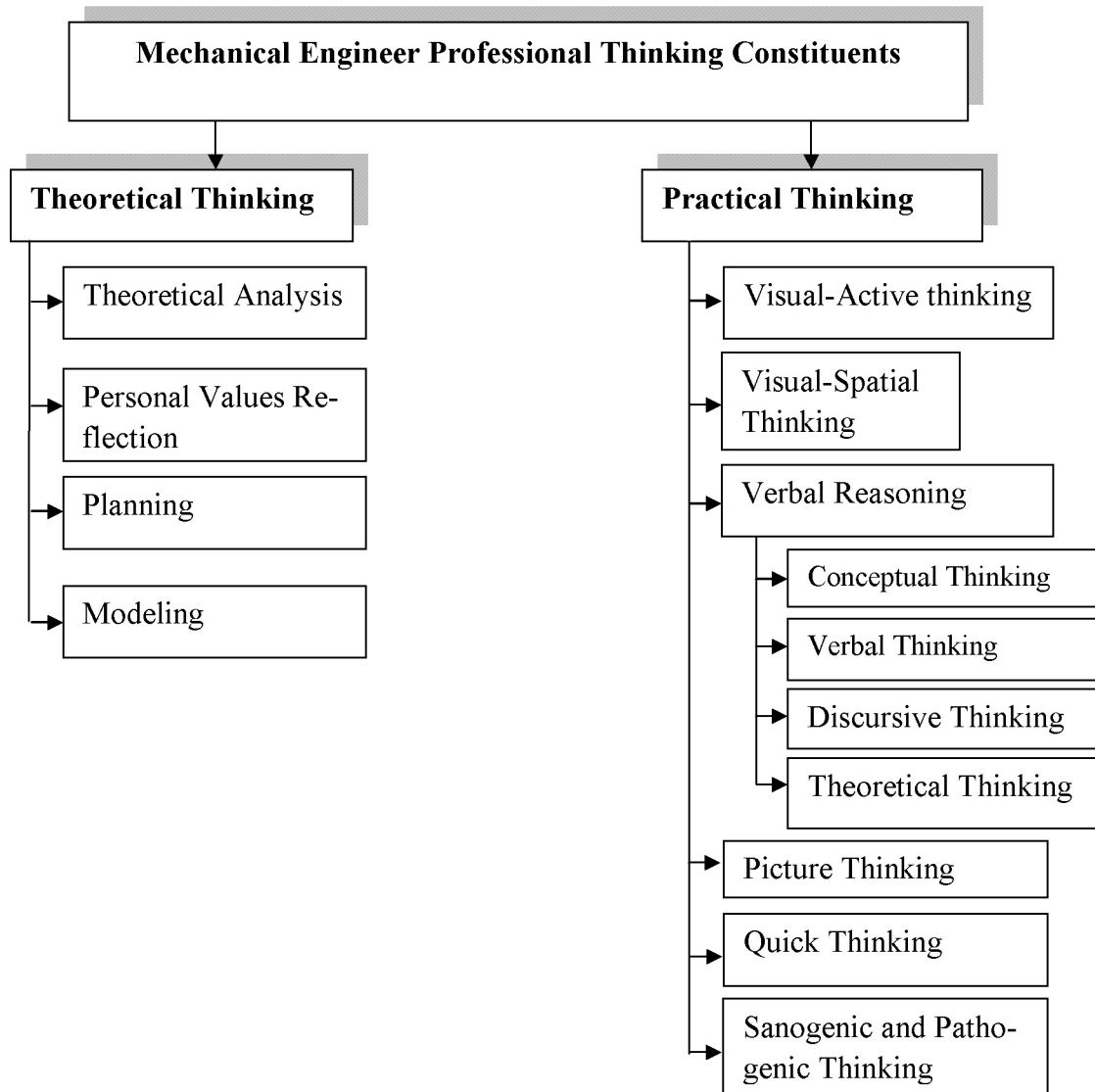
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┌──────────────────────────────────────────────────────────┐
│     Mechanical Engineer Professional Thinking Constituents │
└──────────────────────────────────────────────────────────┘
        │                                    │
┌──────────────────┐              ┌──────────────────┐
│ Theoretical      │              │ Practical        │
│ Thinking         │              │ Thinking         │
└──────────────────┘              └──────────────────┘
   → Theoretical Analysis            → Visual-Active thinking
   → Personal Values Reflection      → Visual-Spatial Thinking
   → Planning                        → Verbal Reasoning
   → Modeling                            → Conceptual Thinking
                                         → Verbal Thinking
                                         → Discursive Thinking
                                         → Theoretical Thinking
                                      → Picture Thinking
                                      → Quick Thinking
                                      → Sanogenic and Pathogenic Thinking
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Fig. 1.The constituents of professional thinking of the future mechanical engineers

Reflection ensures searching and considering of essential reasons for the person's actions. It helps people to mentally analyze their own actions, estimate the means and methods which suit the conditions and the structure of the problem.

Planning (imaginary experiments or internal scenario) provides mental restructuring of the problem without any external support, in order to identify ontological relations. Planning helps to determine the ways of pursuing a goal and to correlate intermediate and final results and goals (the empirical (practical) thinking allows one to plan only "one step forward", verifying it by trial and

error). V. Andronov states that as a type of professional thinking, planning helps to achieve a common goal by determining and selecting the most appropriate ways and means which must comply with the essential conditions and moral criterion of the problem to be solved.

In today's world of information technology *modeling* helps to imitate mental operations of mechanical engineers via spatial models or visualized images and tasks. To illustrate, the design of basic components and parts of the device via graphic dialogue systems plays a key role in the professional training of mechanical engineers. It simplifies the process of

finding solutions to engineering problems and contributes to professional thinking development.

The methods of theoretical understanding of information by future mechanical engineers should include analysis, synthesis, comparison, abstraction, generalization, classification, systematization, deduction, induction, unassisted problem specifications and others.

Thinking of the mechanical engineer is closely associated with action. E. Shalamon believes that thinking advances and improves through practical actions, which may not be considered as inherently primitive ones [3]. Professional activities help the mechanical engineer to perceive, affect, understand and change the reality. His/her mental operations are not simply accompanied by the actions or vice versa because action is the primary form of thinking of any individual and expert in particular. All mental operations that are part of theoretical thinking initially emerged as practical operations, and then evolved to theoretical ones. *Practical thinking* of the mechanical engineer is closely connected to *visual-active thinking,* because in solving professional problems the engineer appeals to real, physical transformation of the situation, manipulating the objects.

In solving professional problems, the mechanical engineer may use *visual-spatial thinking* that operates images and reflects the reality. Mental images help to build a holistic view of reality, and not its individual fragments. The main mental operations of the mechanical engineer who uses visual-spatial thinking to solve professional problems are such as recognition, discretion, forming, transformation and synthesis of content of mentally visualized technical objects.

Verbal reasoning of the mechanical engineer is the most recent stage of thinking development. Verbal reasoning uses concepts, logical constructions that sometimes cannot have an image representation (e. g. material strength, resistance etc.). The mechanical engineer with good verbal reasoning abilities may easily identify the most common patterns, predict and anticipate the operation processes of mechanisms and systems, generalize the data.

According to E. Franus, the design tasks that mechanical engineers perform are based on their imagination and thinking. Thinking that participates in the

design, "completes" the images of objects, real phenomena and their properties is called *picture thinking.* Picture thinking is associated with visual images. The creative activity of the individual begins with semantic interpretation of a mental-visual image (P. Symonenko) and selection of the strategy for image creation (colouristic, graphic shape and synthetic one). Possible errors in creating a visual image are not caused by the lack of imagination, but by the erroneous thinking due to the lack of professional knowledge and skills.

Practical activities of the mechanical engineers are related to manufacturing system control (system operators) and social system control (chiefs/leaders). The control processes often take place in stressful or even extreme conditions. When the mechanical engineer tries to solve the practical problem using simulated objects and systems it helps him to model further activities (make a plan) so as to reach the goal. This refers to *quick thinking* of the mechanical engineer. A characteristic feature of quick thinking is emotional experience caused by the responsibility for the decision made. It requires *perception* and *reflection,* causing great emotional-volitional stress.

Since every person experiences emotions and feelings, we consider sanogenic and pathogenic thinking (explored by Yu. Orlov) as parts of professional thinking of mechanical engineers. This means that person's affections are subject to mental, cognitive control. According to Y. Orlov, every emotion is destructive and stressful if it totally controls the person's behavior and if the person is obsessed with it. However, emotions are the product of cognitions that is why cognitive behavior may control the impact of negative emotions on the psyche. *Pathogenic thinking* is associated with resentment, envy, shame, failure, fear and other negative emotional experiences of a person. *Sanogenic thinking,* by contrast, helps to subdue negative emotions and contributes to psychological recovery of the future mechanical engineer. It can be considered an option of a broader concept such as positive thinking (M. Molts). This refers to the establishment, regular support and contribution to a positive self-image stimulated by personal successful actions and overall life success.

Depending on how new some activity is for the future mechanical engineer, we have identified *repro-*

ductive, *productive* and *creative* thinking. *Reproductive* thinking of mechanical engineers "is based on certain logical rules without building any unusual, new associations, making comparisons, analyses, etc." [1, p. 163]. *Productive* and *creative thinking* (L. Badanina, Ya. Krushelnytska) are characterized by going beyond the existing facts, identification of latent properties of objects, detection of unusual relations, transfer of principles and ways of solving professional problems from one sphere to another and flexible change-over in the ways of solving complicated problems and so on. If the above-mentioned mental operations of future mechanical engineers give them new knowledge or information, which isn't, however, new to the community, this is called *productive thinking*. In case mental operations of mechanical engineers give them some completely new information, this is called creative thinking. Creative thinking and creative imagination make up a psychological basis for human creativity and provide the source of innovation in all spheres of human activity.

Thus, all of the above types and styles of thinking jolly well co-exist in the intelligence of the mechanical engineer. The combination of knowledge (theoretical, practical, procedural) skills and interdisciplinary approach in solving professional problems create a uniform intelligence of any future mechanical engineer. The principle of a uniform intelligence (B. Teplov) is essential to clarify the nature of professional thinking of the future mechanical engineer.

Having familiarized ourselves with the scientific studies and clarified the meaning of professional thinking for mechanical engineers definition, we define *"the professional thinking of the future mechanical engineer"* as an intellectual activity aimed at solving theoretical and practical professional problems based on the specialized knowledge with regard to technical skills in the area of expertise.

To determine the level and adjust the process of practical thinking development, training must include various problem-oriented tasks, learning and manufacturing practices and competitions. The problems aimed at productive and professional thinking development must foster the ability of future mechanical engineers to overcome the psychological inertia and "see" not only "major" traditional features of objects and phenomena, but also "minor"

ones, which under certain conditions can become crucial.

An important aspect of the problem-oriented tasks is their research nature. We agree with L. Sushchenko that in training of future experts problem-oriented tasks must bring up the research skills. The trainees must learn to advance their scientific knowledge independently, they also must be able to perform creative tasks and be mobile in their studious inquiries" [7, p. 509].

Considering the types of thinking that constitute professional thinking of mechanical engineers and the opinions of scientists on innovative changes to its development, we distinguish the following components: 1) motivation; 2) search for meaning and values; 3) integrated intelligence; 4) professional engagement and activities; 5) reflexive reasoning and evaluation.

Motivation implies impelling and searching mechanisms which stimulate the activity of future mechanical engineers. We know that a strong motivation compensates for some weak points of an expert (V. Andronov). Poor motivation of experts is unlikely to be compensated somehow. It is therefore very important to purposefully develop this component of professional thinking in future mechanical engineers.

The *search for meaning and values* is supposed to foster responsible attitude of personality to living beings and inanimate nature. As a result subjective and objective values are established. Responsible attitude and activity as an essential base of a person's life is achieved through emotional experiences. Meaningful, active emotions generate rational motifs of future mechanical engineers. According to I. Beh, it is experience that "integrates the personality into his/her social and natural environments as objective reality, making the latter a vital social and cultural situation in which personal development takes place" [2, p. 127].

Integrated intelligence means the availability of basic knowledge in engineering, integrated with psychological, pedagogical and managerial knowledge to develop professional thinking of the future mechanical engineer.

Professional engagement and activities build up a frame of professional skills that contribute

to the accumulation and development of professional thinking of the future mechanical engineers. They include: *design engineering skills* that mean the ability to observe, collect and process information; the ability to find and single out the design features mechanisms or systems; the ability to critically analyze and summarize the data; ability to identify contradictions and formulate the problem; the ability to use imagination and thinking to visualize concepts and find solutions to professional problems; the ability to argue their choice in solving professional problems, as well as to put forward hypotheses and offer original ideas that differ from the existing ones; the ability to do research; *planning and predicting skills* that imply the ability to identify the unity of professional problem tasks and conditions for their fulfillment; the ability to react to the changing conditions in professional problem solving, taking into account the aftermath of the decisions and activities; *information technology skills* that mean the ability use computer systems and do computer-aided modeling when solving professional problems; *organizational and communication skills* that imply the methods and techniques of working with people, knowledge of philosophy, psychology and culture of management; the ability to solve management problems in complicated situations, including lack of information awareness and risk; the ability to present personal work to colleagues and in the labor market.

Reflexive reasoning and evaluation as a component of professional thinking is aimed at development of ethic identity (reflection) which it is essential for self-education and self-improvement. Self-reflection is based on introspective thinking that is when a personality learns and thinks about his/her inner self. Thus, in their analyses of thinking, M. Mamardashvili, E. Soloviev and V. Shvyrev state that consciousness employs the instruments of reflection and then becomes intelligent. According to I. Beh, reflection "is a way for the personality to understand his/her causes of actions, to think over the inner nature and the results of the actions done" [2, p. 48].

Thus, the structural components of professional thinking of future mechanical engineers are supposed to primarily influence the development of their particular personal qualities, to improve their cognitive abilities, to help them learn the culture of mental labour, to master professional thinking and professional skills.

Conclusions and prospects of further research. The paper presents a comprehensive explication of professional thinking of the future mechanical engineers. The author has described five structural components of professional thinking, which must be regularly improved and developed by teachers and students, as well as modified in due course to meet the requirements of the modern world.

The study conducted confirms the diversified research into the concept of "professional thinking of the future mechanical engineers" and at the same time emphasizes that the explanation of its meaning and structure is not of great interest to the Ukrainian researchers. The explication of "professional thinking of future mechanical engineers" and determination of its structure enable the use of criterial and stratified approach to further research of this phenomenon.

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Ethical development of future teachers of philological specialties-is the way of adaptation to the professional activity

Abstract: The role of ethical development of future teachers of philological specialties during their adaptation to the professional activity is examined. Different methods to facilitate ethical development are proposed.

Keywords: ethics, adaptation, professional activity, future teachers of philological specialties

The culture of a teacher's behavior is of great importance. Having a culture of behavior, the teacher is able to form it among whom he teaches and educates. So an educator or a school teacher form the culture of pupil's behavior, and also influences the culture of behavior of pupil's teacher. Teachers of a Higher Pedagogical Institution improve the culture of future teachers' behavior. The actual question arises the influence of ethical development of future teachers of philological specialties to the adaptation to the pedagogical activity.

The purpose of the article is to define the role of ethical development of future teachers of philological specialties on the adaptation to the professional activity.

References define the term "ethics" as: 1. The science of morality, its origins, development and role in public and private life of people; 2. Standards of conduct, a set of moral rules of any class, social organization, profession [7, 652]; 3. Moral principle; 4. Moral philosophy [10, 105].

Pedagogical ethics is a part of ethics that reflects the specifics of the functioning of morality in the conditions educational process; the science of different aspects of the moral activity of the teacher. The subject of pedagogical ethics are the regularities of the existence of morality in the minds, behaviors, relationships and activity of a teacher [2, 169].

Pedagogical ethics is present in every fragment of pedagogical actions, this so-called professional "compass" which orients teachers in semantic and situational field, suggests the necessary strategy and tactics of behavior. The individual- oriented character of educational activity, relations with pupils, their parents and other participants in this process include the need to reorient the consciousness of teachers

for recognition of new educational priorities: respect of student's individuality and the right to self-determination, mastery of relevant ethical standards, adequate behavior in different situations changing of school life that require moral choice [9,14–15].

We think that teacher's ethics should be regarded through morality and spirituality. Morality — 1. Moral doctrine, rules of morality, ethics; 2. Moral conclusion from something; moral lesson; 3. Morality, teachings [5, 309]. Spirituality is an abstract noun from the word spiritual. Spiritual — associated with an internal mental life of a person his moral world [7, 628].

Moral activity of a teacher covers the rules of interaction between him and a pupil, that contribute to the formation and development of the pupil's individuality. Compliance of highly spiritual moral norms contributes friendly relationship between a teacher and a pupil. Teacher's conscientious execution of his educational functions, contributes to the solution of various problems in society that arise as a result of weak educational influence on pupils, and this in turn requires improving the level of education from the teacher.

The professional teachers' activity, issues of professional adaptation have always been learnt by educators, psychologists, sociologists. The investigations of B. Ananiev, Ya. Absaliamova, L. Brodska, V. Bezyulyeva, D. Dubravska, I. Glazkova, O. Halus, S. Kulyk, A. Moroz, S. Ovdey, N. Chaikina, E. Savchenko, S. Khatuntseva are of great interest.

In our point of view the result of adaptation of future teachers of philological specialities is mastery of sustainable forms of the professional activity, self-realization as a teacher, development and disclosure of professional potential; suitability to the conditions of an educational institution.

V. Bezyulyeva regarded adaptation as a process of formulating an optimal regime of purposeful functioning of a personality, i. e. bringing it under specific conditions of time and place in the state when all forces of a person are directed to perform basic tasks. It is expressed in the restructuring of a dynamic stereotype of a person in accordance with the new requirements of the environment [1, 16].

O. Halus understood adaptation as an active conscious process of person's accommodation to the changing conditions of life, the acquisition and generation person's adaptive mechanisms, capable of establishing at certain stages relative balance with society [6, 20].

S. Khatuntseva determined the adaptation of a young teacher as the process of entering the educational environment, mastering of its standarts, values and culture, a consequence of interaction with it, learning and implementation of the professional experience [8, 39].

A. Moroz considered professional adaptation of a young teacher as difficult specific social and educational phenomenon that has its own structure and mechanisms, a system can be managed, ie planning, organizing and controlling [3, 151].

Adaptation of future teachers of philological specialties to professional activity we understand as the mastery of future teachers' professional knowledge and skills during studying in a higher pedagogical institution, the ability to use the acquired knowledge during teacher-training practice and in further professional activity, formation of future teachers of philological specialties as professionals.

We think that ethical development of future teachers of philological specialties influences the adaptation to the professional activity.

During our classes students had a a module "Ethics in the pedagogical activity of a future teacher" which consisted of a lecture "Ethics of a modern teacher", seminars: "Ethical norms and qualities of a future teacher-philologist", "Humanism in the pedagogical activity". All the seminars were held in positive atmosphere, each participant was heard.

We also paid attention to the students' individual work. In references students found the terms "ethics", "morality", "humanism". They wrote an essay "What does it mean to be humane". Future teachers prepared presentations: " 'For' and 'against' the punishment as a method of bringing-up a personality", "The problem of good and evil in the pedagogical ethics", "Conscience is the basis of teacher's morality". It was a very interesting task for future teachers to give their own recommendations to develop moral qualities of the future teachers-philologists.

We held the questionnaire " Evaluation of the professional orientation of a teacher" [4, 30–37] after the pedagogical practice. We got the following results.

The sociability index was at a low level in the EG lower by 6,2% than in the CG, on average level — by 7,3%, at a sufficient level the rate was higher by 6,2%, on a high level: by 7,3%.

The organization index in CG was higher by 9,1% than in the EG at a low level, on average level was higher by 9,3%, at a sufficient level of the index was lower by 7,2%, at a high level — by 11,2%.

The orientation of the object index in the EG was lower by 7,2% than in the CG at a law level, at an average — by 7,3%, at a sufficient level the index was higher by 6,2%, at a high level — by 8,3%.

The intelligence index was above 8,1% in the CG than in the EG at a low level, at an average level — by 7,4%, at a sufficient level the index was lower by 9,2% and at high level by 6,3%.

The motivation of approval index at a low level in the EG was higher by 4,3% than in the CG, at an average level — by 6,2%, at a sufficient level the index was lower by 5,2%, at a high level by — 5,3%.

We have determined that ethical education of future teachers of philological specialties plays a great role in the adaptation to the professional activity, the professional orientation of future teachers of philological specialties.

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Section 2. Gender Education

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Gender approach to processes at higher technical education in Russia

Abstract: Higher technical education in Russia is considered from a gender point of view. Gender asymmetry in higher education is explored through the analysis of official statistics and study of training of petroleum engineers. The results of statistical processing and sociological survey and interviews of students of Gubkin Russian State Oil & Gas University are represented.

Keywords: Higher technical education, gender asymmetry, statistical data, survey opinion, engineering undergraduates, gender analysis, professional career, gender inequality, statistical processing.

Introduction

Decline in Russian higher engineering and technical education during twenty last years has been highlighted by many researchers [1–4]. Transition from a planned economy to a so-called free market economy has led to disastrous consequences for science and education [1, 125–126]. The share of students graduated from state universities by engineering specialties decreased from 42% in 1998 to 22% in 2008 (in private universities this share is about 1%). Total number of students for the same period increased in 2.6 times and the number of students graduated in economy, management and law increased in 6.3 times. According to the data of Association for Engineering Education in Russia [2, 19–20], obtained as a result of expert workshops in 2011–2012, the state of engineering education in Russia is in systemic crisis (17% of the experts), critical (36%), stagnant (30%). Only 17% of the experts considered the status of engineering education in Russia satisfactory. According to the data of Russian Statistical Yearbook 2014 [5] the number of engineering graduates decreased from 351.7 thousand (24% of all graduates) in 2010 to 281.8 thousand (22%) in 2013. Not only the number of engineering students is decreased but the quality of engineering education is reduced [3]. According to the employers' opinions in 2013 about 40% gradu-

ates from technical universities have insufficient training and should be additionally trained to begin the work. The level of knowledge of students admitted in technical universities is much inferior to the corresponding level of the soviet period. Engineering education has lost its former popularity and quality in Russia. Problems of engineering education are of great concern not only in Russia but all over the world [4, 395–396]. The popularity of higher technical education among young people falls, the percentage of students of engineering specialties of the total number of students is decreasing. At the same time demand for efficient engineers is everywhere growing. For example, even in a highly developed country like Denmark in 2020 shortage of 1400 engineers is projected. In Sub-Saharan Africa shortage of engineers and technicians is 2.5 million. Worldwide shortage of engineers constitutes a threat to the development of society.

The risks related to this shortage require to draw more female students to higher technical education and to train more women-engineers. An engineer is a male-dominated profession, but not everywhere and always: in China 40% of engineers are women, in the former USSR women accounted for 58% of engineering workforce [6]. Engineering education lags severely behind the other sciences in terms of share of women in the total number of university

students. Under-representation of women in undergraduate engineering programs may be caused by gender inequality in students' admission and retention. The specialized research highlights that in USA the dropout rates for girls and boys are approximately equal and gender disparities in engineering education are largely driven by inequality in women and men admission [7, 220–222]. In Russia as a whole the dropout rate is significantly lower for females than for males. It can be explained by the high degree of gender segregation by specialties and by the fact that girls in average have academic achievements better than boys [8, 66–67]. According to the data of the National Center for Science and Engineering Statistics in USA in 2012 women accounted 56.5% of all university students, and only 18,6% of students of programs of higher engineering education [9, 173]. In Russia in 2013–2014 (fall semester) this gap was smaller: women accounted 54.0% of all university undergraduates, and 29.6% of undergraduates in higher technical and engineering education [10, 60–61]. Despite the fact that the overall employment status of women has increased all over the world and more and more women get higher education, women are still under-represented in the engineering professions. Obviously, the attraction of women to engineering careers is an important and challenging problem. Necessary steps should include: the early motivation of women, full support to those who have chosen the profession of engineering, a woman-centered model of teaching technical sciences, specially trained teachers [9, 175]. The change of gender stereotypes to attract women in higher technical education is possible with a competent professional orientation at all levels: from school to media. Given the fact that engineering professions are becoming less popular in Russia and world-wide, increasing the participation of girls in the competitions for admissions to technical universities allows to raise the quality of higher technical education and overcome the shortage of qualified engineering professionals in the fields of high-tech economy. Economic development will not be successful without women equally participating in all fields of economic activity.

Methods

Federal State Statistic Service (Rosstat) has been issuing Statistical Handbook "Women and men in Russia" since 1997 year every two year. The Handbook has been prepared on the basis of information obtained by the State statistical bodies from organizations, the results of current surveys as well as by the data supplied by ministries and agencies of the Russian Federation. The Handbook contains data by sex groups on population, educational attainment, training of students of higher professional education institutions. Changes of the share of women at different levels of higher education and among undergraduates of various specialties from 1999 to 2014 have been explored by the author using the data of the Handbook.

A more detailed study of gender asymmetry in higher technical education was carried out by an example of training engineers of oil and gas industry in Gubkin Russian State Oil & Gas University — the principal university of petroleum engineering education in Russia. Annual admission to the university is about 1500 students, an average share of female engineering undergraduates is about 30%. There are University Preparatory Courses in Moscow as well as University Regional Preparatory Courses at oil and gas areas helping petroleum companies to prepare specialists for work in remote regions. About 30% of engineering undergraduates at Gubkin University are sponsored by petroleum companies. The paper presents the gender analysis results obtained by statistical data processing and sociological survey of undergraduates and students of Preparatory Courses of Gubkin State University. The Data Base on 1240 students of engineering faculties has been created. The Data Base contains the information about Gender (Female or Male); Type of Admission (Budget — sponsored by State, Target — sponsored by petroleum company, Contract — student pays tuition); Region of student's graduation from high school (Central District, South District, Volga Region, Ural, Siberia, Far East, North Caucasus); Faculty (Computer Science, Geology & Geophysics, Mechanical Engineering, Petroleum Reservoir Engineering, Pipeline Systems, Chemical & Environmental Engineering) and Academic Success (scores for two semesters of study physics). The Data had been proceeding and histograms and graphs of distributions were obtained. Analysis of the results reveals a significant gender asymmetry for all parameters.

The survey opinion has been conducted in two independent groups: first-year students of Mechanical Engineering Faculty (60 respondents) and students of the University Preparatory Courses in Moscow and Volga Region (60 respondents). A majority of respondents were male what reflected the situation in engineering education in general and at Gubkin State University in particular. The respondents answered questions about prestigious of profession of petroleum engineer, choice of the specialty, confidence in getting job after graduation the university and gender inequality in the profession of an engineer. The survey revealed a significant difference between opinions of female and male respondents and between opinions of two groups. Five female undergraduates studying on "male" specialty (one girl in a group of 25–30 students) were interviewed. They were questioned about their choice of the specialty, expectations of future professional career, understanding the difficulties in professional development caused by family life and children, awareness of gender inequality still existing in engineering profession. The results of the interviews were similar despite the fact that the girls selected different faculties, came from different regions and from families with different traditions and education.

Results

Analysis of data of the Statistical Handbook from 1999 to 2014 reveals the gender asymmetry: both vertical (by level of education) and horizontal (by specialty). Higher education in Russia has a multilevel structure of training of highly qualified professionals. After graduation from the university student defends a diploma and obtains qualification "specialist" (now along with this system of higher education the «bachelor — magister» educational process is introduced). The second level of higher education is three years of postgraduate study: student defends a dissertation and gets a degree of Candidate of Sciences (analog of PhD). The highest qualification — degree of Doctor of Sciences — could be obtained after three years training in Doctorate and defending doctoral thesis or after publishing of results of important scientific researches.

The share of women in Russia's population has grown from 53% in 1999 to 54% in 2014. The share of female undergraduates from the total number of university students has decreased from 57% to 54% for the same time. The share of women in postgraduate and doctorate is less than 50% on the whole and less than 30% for engineering specialties but it is continually increasing (fig.1).
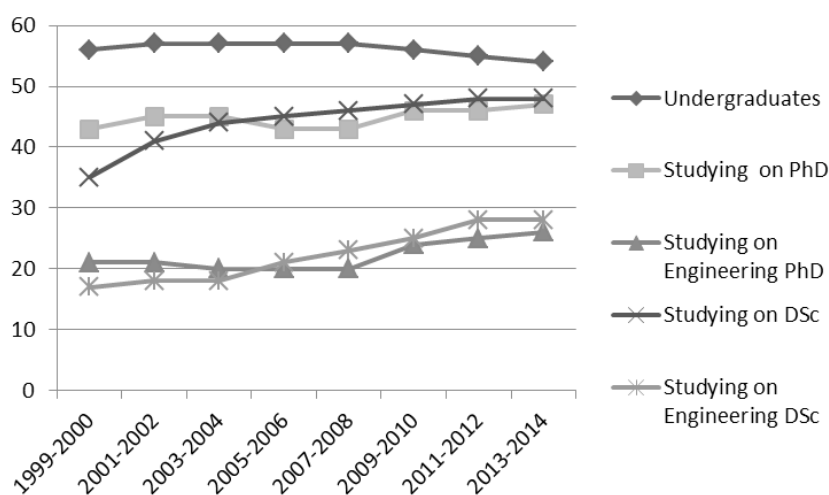

Fig.1. Share (%) of female students by level of education

The increase is particularly high for women studying in doctorate: from 35% to 48% on the whole and from 17% to 28% for technical specialties (tab.1).

Tab.1 – Share (%) of female students by level of education

	1999–2000	2013–2014
1	*2*	*3*
Postgraduates	43%	47%
Doctoral students	35%	48%

1	*2*	*3*
Postgraduates in engineering	21%	26%
Doctoral students in engineering	17%	28%

With regard to the horizontal gender asymmetry the share of female undergraduates is more than 50% due non-technical specialties (fig.2). According to the data of Statistical Handbook female university students prefer pedagogical (share of women from 82% to 76%), economic (from 71% to 66%), medical and humanitarian (about 70%) education. At the same time the share of women is less than 30% for most of technical specialties and this share has been continuously decreasing (fig.3). For fifteen years the share of female undergraduates on most technical specialties has decreased greater than the share of female undergraduates in general. For example, this decrease from 2000 to 2014 is: from 20% to 6% in marine engineering, from 25% to 17% in machine building (tab. 2).
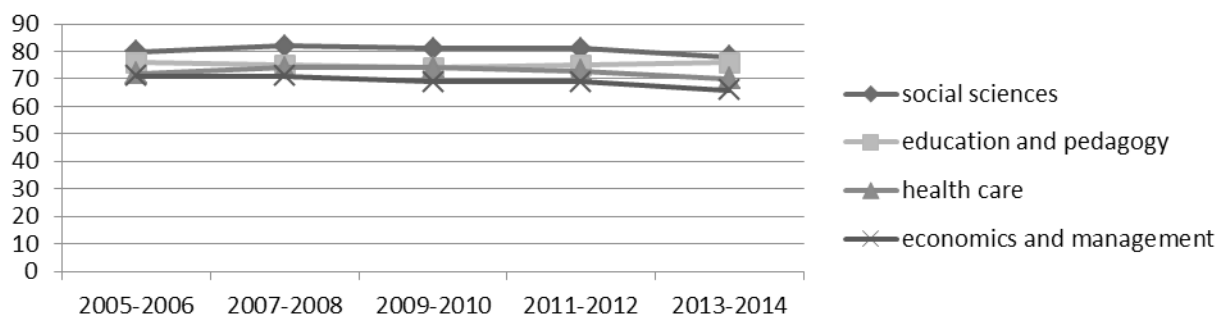
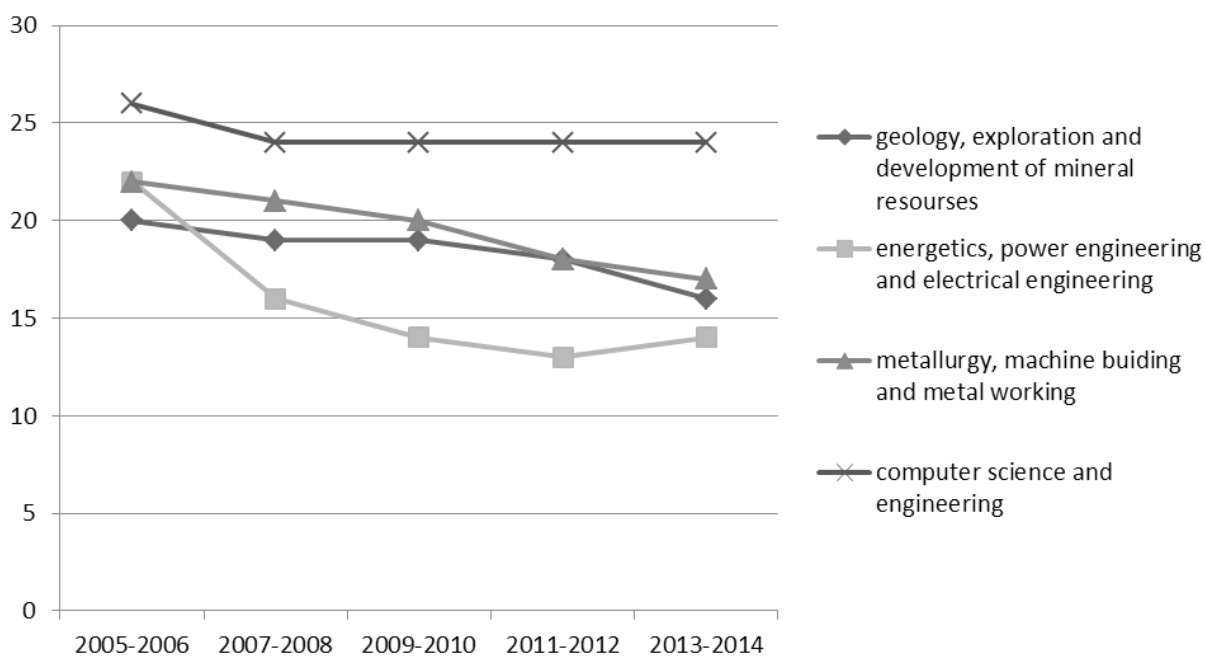Fig. 2. Share (%) of female students in non-technical specialties

Fig.3. Share (%) of female students in technical specialties

Tab. 2. – Share (%) of female students in technical specialties

SPECIALTY	1999–2000	2013–2014
1	*2*	*3*
geology and exploration	40	16
development of mineral resources	19	
Metallurgy	35	17
machine building and metal working	25	
energetics, power engineering	19	14
computer science and engineering	27	24

1	*2*	*3*
electronic equipment, radio and communication	22	18
aviation, rocket and space technology	18	14
marine engineering	20	6
chemical and biotechnology	57	51

Results of statistical processing of data of Gubkin Russian State University's undergraduates by gender, types of admission, regions, faculties and academic success reveal a traditional gender inequality.
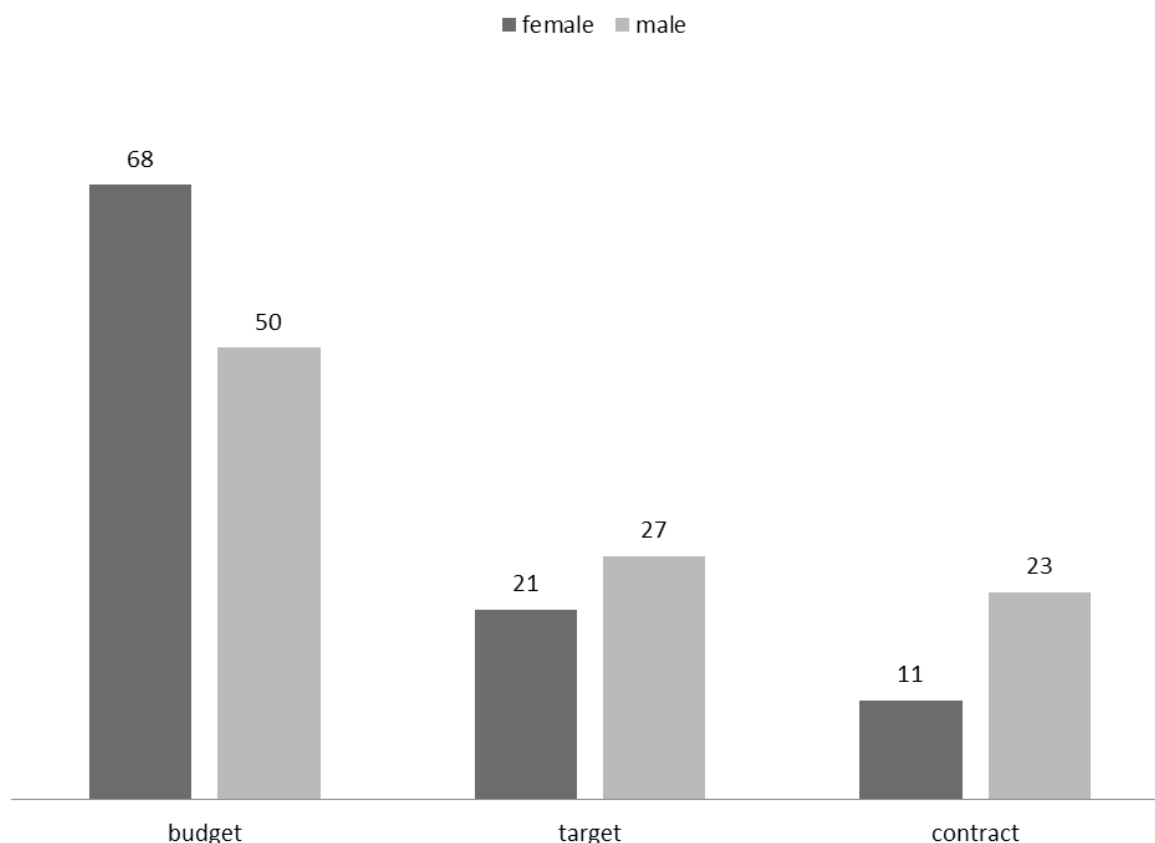

Fig.4. Distribution (%) of female and male undergraduates by type of admission

There are three types of admission to the university: Budget (sponsored by State), Target (sponsored by petroleum company), Contract (student pays tuition). Statistical analysis of data of first-year students on engineering faculties by types of admission reveals a significant gender asymmetry (fig.4). Percent of female students as proportion of all (100%) types: 68% for Budget, 21% for Target, 11% for Contract. Percent of male students: 50%, 27%, 23% accordingly. Budget admission requires very high scores of Unified State Exam (USE). Target admission depends on petroleum companies and does not require high USE scores. Students with lower USE scores are usually enrolled under Contract. Statistical analysis shows that girls have in average better USE scores but petroleum companies prefer boys as target students.

Statistical analysis of data by gender and regions has been used to find a share (in%) of female and male students from various regions of Russia. Traditional gender inequality has been obtained for all regions except Siberia where female share is 58%, male share — 42% (fig.5). All other regions (except North Caucasus) have a share of female undergraduates from 18% to 33%.

Highlighting gender discrimination result has been obtained for North Caucasus: share of female students is 7%. Share of girls in the University Preparatory Courses varies from 25% to 40% for Moscow, Volga Region and Siberia. On the North Caucasus for several years there was not any girl enrolled in the courses! Local traditions create difficulties for girls on their path to higher education, especially engineering.
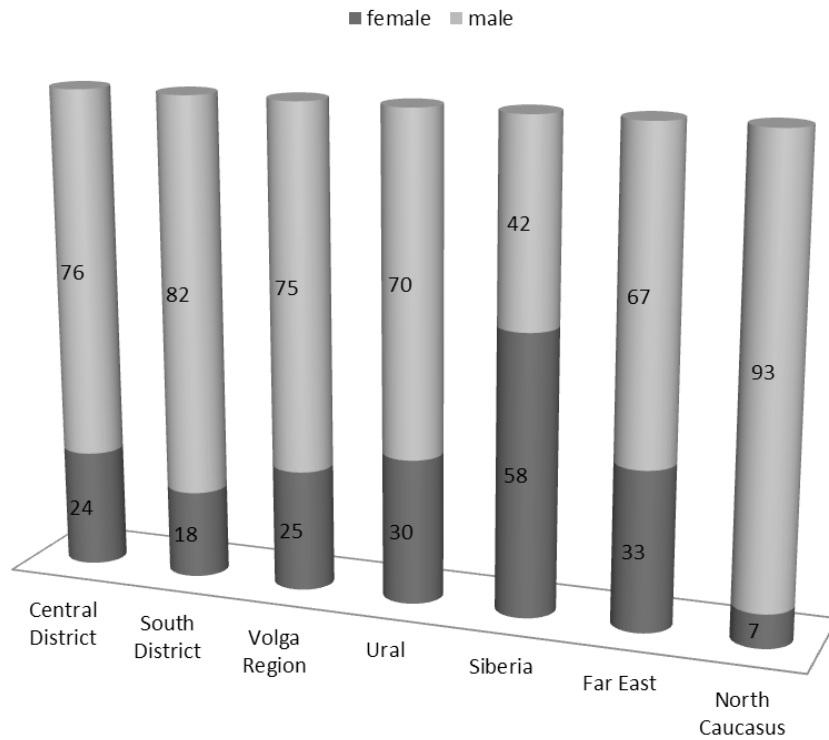
■ female   ■ male

Fig.5. Share (%) of female and male undergraduates by region

Analysis of share of female and male undergraduates by faculties reveals a considerable gender asymmetry on all engineering faculties except Chemical & Environmental Engineering where the female and male share is equal (fig.6). The female share is less than male on other faculties. It is especially small on Pipelines Systems (19%) and Petroleum Reservoir Engineering (14%). Nevertheless there are several specialties where the majority of undergraduates are females: Industrial Ecology, Industrial Safety and Environmental Protection, Certification and Quality Control of Oil and Gas Equipment etc. There are a lot of specialties where the share of female undergraduates is less than 5%: Machinery and Equipment of Oil and Gas, Drilling of Oil and Gas Wells etc.
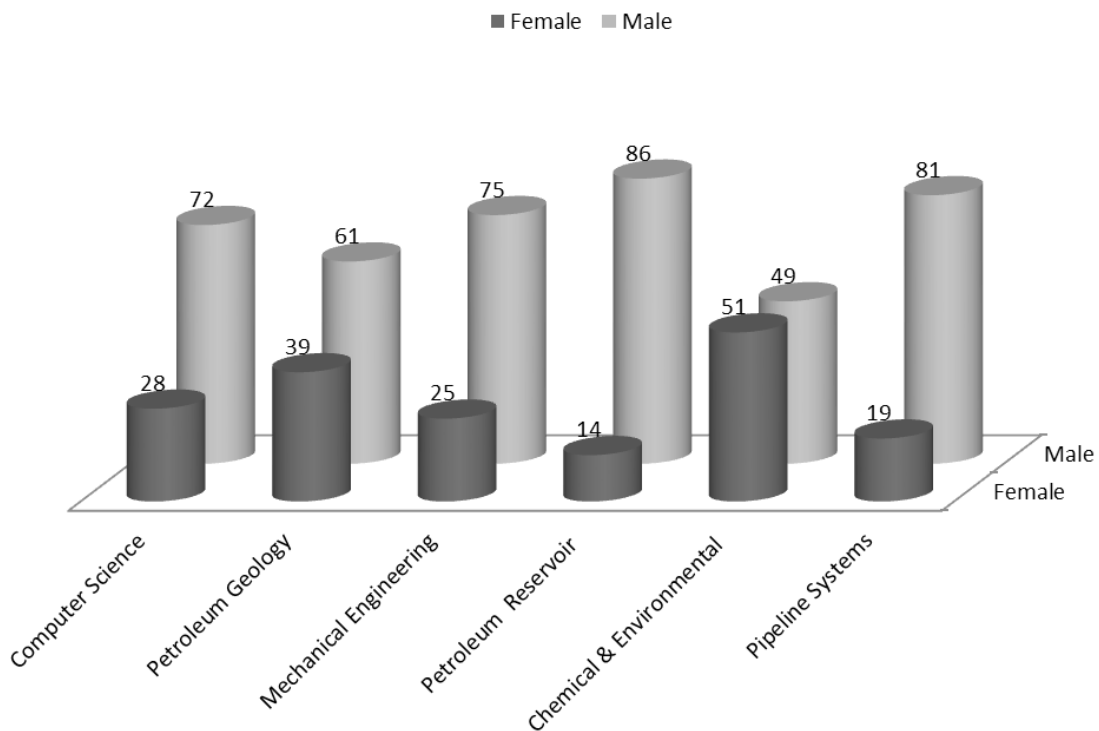
■ Female   ■ Male

Fig.6. Share (%) of female and male undergraduates by faculty

Statistical analysis of engineering undergraduates on two semesters of studying physics reveals a stable gender asymmetry in academic achievement (fig.7). Share of female and male students with test scores A&B is equal on Geology & Geophysics and Pipeline Systems. On other four engineering faculties in average 68% of female students and 42% of male students in Fall semester and 55% of female students and 38% of male students in Spring semester had got scores on the physics A & B. Trending dynamic of academic progress gives evaluation of motivation and drive for professional success. It reveals that first-year female students often approach to the process of training more responsibly than their male counterparts. First-year female students have in average better scores on general subjects even such difficult as physics because they are more motivated about learning and they have better high school knowledge.
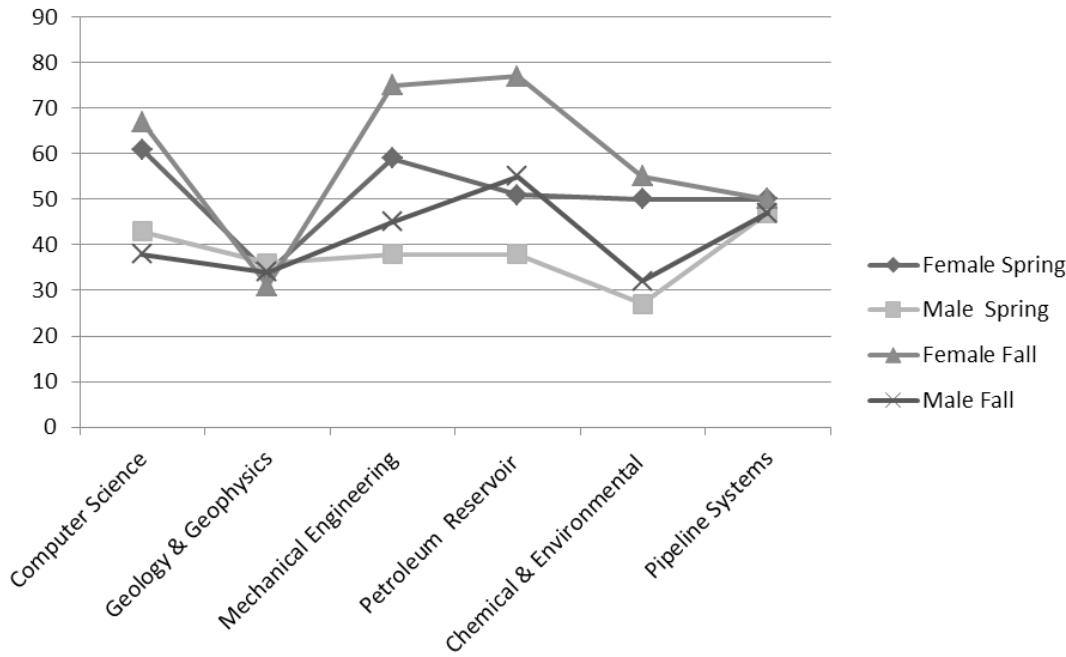
Fall and Spring Semesters of Studying Physics

Fig. 7 Share (%) of female and male students with scores on the physics A&B

A sociological survey conducted between undergraduates and between students of the preparatory courses reveals the significant difference between answers of female and male respondents and between answers of two groups. All respondents answered five questions. 100% of respondents answer "Yes" the questions "Do you consider that a petroleum engineer is a prestigious profession?" and "Do you consider your profession as a basis of future material welfare?" Two questions have revealed a significant difference between opinions of female and male respondents but no differences between opinions of surveyed groups (undergraduates and students of preparatory courses). 75% of girls and 95% of boys answered "Yes" the question "Are you sure you will get a job on the specialty after graduation the university?" The vast majority of respondents hope to get a job in oil and gas industry after graduation although boys are more confident in their future than girls are. 25% of girls and 60% of boys answered "Yes" the question "Do you have friends or relatives working in oil and gas industry?" The answers indicate that professional orientation on petroleum engineer is largely determined from family but girls are more independent in choice of profession. Only one question revealed a considerable difference in opinions of surveyed groups: "For whom is harder to get a job in the specialty after graduation the university?" It was a question with three choices of answer: a) woman, b) man, c) no difference. 55% females and 25% males on Preparatory Courses and 95% females and 50% males among undergraduates selected the answer "woman". The rest of respondents selected the answer "no difference" and nobody — the answer "man". The survey results show that girls are more aware of gender inequality in getting job

and career promotion but this realization is growing with time for all respondents.

Five female students studying on "male" specialty (one girl in a group of 25–30 students) were inter-viewed about selecting of specialty and understanding of barriers in professional career. The results are represented in tab.3.

Tab. 3. – Barriers to career women

Choice of profession	Conscious independent choice
	Inclination to exact sciences (math, physics, chemistry)
Professional career	Intention to work in the chosen specialty
	Interest in a professional career
	Intention to get an experience in production (oil field, refinery)
	Aspiration to higher career levels
	Confidence in an ability to achieve higher career levels
Family issues	Professional status not less than that of husband
	Contribution to the family budget not less than that of husband
	Getting married and having children is not hurt professional career
Gender inequality	Equal starting positions after graduation don't provide equal career progress for female and male engineers.

The girls told about the conscious independent choice of their specialty, the inclination to exact sciences, the intention to work in the chosen specialty and about their interest in professional career. They are planning after graduation from the university to work (at least for a while) not in an office or a research institute, but in production: oil fields, refinery etc. because it is necessary for experience and successful career. The girls are confident that their career will not depend on family and children because family life could be organized reasonably in modern society. They are sure that their professional status and contribution to the family budget will be not less to the husband's. At the same time the girls understand that equality of starting positions don't provide equal career progress for them and their male counterparts. The results of interviews show that girls are independent and ambitious in their choice of profession. They are ready to make professional career slowly but they are confident in achieve the highest career levels.

Conclusions

The results of an analysis of official statistics, data processing, sociological survey and interviews of students of Gubkin Russian State Oil & Gas University allow to consider processes in higher technical education in Russia from a gender point of view. Students are bearers of gender consciousness caused by gender knowledge, gender attitude and gender behavior in modern society. Higher technical education reflects gender stratification of the society and culture as a whole. Changing gender stereotypes and socio-economic conditions provide a steady increase in the share of women on the upper levels of higher education in Russia. Gender discrimination still existing in engineering specialties does technical education less attractive for women. Modern women aspire to get higher education and make the successful professional career but they choose easier paths and the share of female students in engineering specialties is continually decrease. Greater participation of women in engineering specialties is possible with the involvement of girls in admission to technical universities with proper career guidance on all levels — from school to media.

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Section 3. Distance Education

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Distance learning technologies as a means of improving the quality of training of future skilled workers in vocational education

Abstract: The article discusses the use of distance learning technologies in the training of future skilled workers in vocational schools. Discloses the idea of using blended learning in vocational schools.

Keywords: distance learning, technology education, skills training, vocational and technical schools, skilled workers, the quality of education.

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Дистанционные технологии обучения как средство повышение качества профессиональной подготовки будущих квалифицированных работников в профессионально-технических учебных заведениях

Анотация: Статья посвящена проблеме использования дистанционных технологий обучения в профессиональной подготовке будущих квалифицированных работников профессионально-технических учебных заведений. Раскрывается идея применения смешанного обучения в профессионально-технических учебных заведениях.

Ключевые слова: дистанционная форма обучения, технология обучения, профессиональная подготовка, профессионально-технические учебные заведения, квалифицированные работники, качество образования.

Высокий темп изменений европейских производственных технологий спровоцировал проблему, возникшую в системе профессионально-технического образования Украины, суть которой заключается в том, что содержание и возможности образовательного процесса в профессионально-технических учебных заведениях (ПТУЗ) существенно отстают от реалий современного производства. В такой ситуации работодателей часто не устраивает уровень профессиональной подготовки будущих квалифицированных работников. Повысить качество профессиональной подготовки учащихся можно путём внедрения в учебный процесс ПТУЗ качественно новых современных форм обучения. Одной из таких прогрессивных форм обучения является дистан-

ционная. Она базируется на использовании дистанционных технологий (мультимедийных, сетевых, телекоммуникационных, ТВ-технологиях и т. д.), которые характеризуются в первую очередь интерактивностью, интенсификациею процесса обучения, обратной связью. Использование дистанционных технологий обучения обеспечит быстрое обновление профессиональных знаний учащихся; позволит значительно расширить аудиторию слушателей на фоне недостатка квалифицированных мастеров производственного обучения в ПТУЗ; сделает учебный процесс более гибким, индивидуализированным, разнообразным, демократичным.

Анализ исследований показал, что разработкой теоретических и практических аспектов дистанционного обучения занимались такие учёные как В. Быков, А. Бондаренко, В. Заболотный, А. Мищенко, А. Пинчук, А. Шестопал, В. Осадчий, С. Сисоева, А. Рыбалко, Н. Сиротенко, О. Андреев, А. Хуторской, В. Овсянников, Н. Глушнева и другие. В своих работах они проанализировали основные принципы и психолого-педагогические основы дистанционного обучения, раскрыли концептуальные подходы и механизмы реализации дистанционного обучения в профессиональной школе, исследовали теорию и методику профессиональной подготовки преподавателей-тьюторов для дистанционной системы обучения, выделили особенности использование информационно-коммуникационных технологий в учебном процессе. Однако вопрос применения дистанционных технологий обучения в профессиональной подготовке будущих квалифицированных работников профессионально-технических учебных заведений остается открытым и до конца не исследованным.

Поэтому, цель статьи заключается в раскрытие возможностей сочетания дистанционной формы обучения с традиционной в профессиональной подготовке будущих квалифицированных работников ПТУЗ.

Дистанционную форму обучения можна рассматривать как целенаправленный, организованный процесс интерактивного взаимодействия всех участников обучения, инвариантный к их расположению в пространстве и времени, реализуемый в специфической дидактической системе. Дистанционная форма обучения существенно увеличивает возможности традиционного обучения путем формирования образовательной информационной среды, в которой учащиеся самостоятельно или под руководством преподавателя могут изучать новый для них материал; способствует приобретению ими навыков самостоятельной работы; повышает уровень образовательных программ путем предложения альтернативных; позволяет формировать уникальные образовательные программы путем комбинирования разных курсов; обеспечивает возможность выбора самостоятельного темпа обучения в рамках установленных сроков. Можно выделить ряд свойств, раскрывающих сущность дистанционного обучения:

— гибкость: обучающиеся не посещают регулярных занятий в виде лекций и семинаров, а работают в удобное для себя время, в удобном месте;

— параллельность: обучение может проводиться сразу по нескольким специальностям кроме основной, в различных предметных областях;

— дальнодействие: расстояние от места нахождения обучающегося до учебного заведение не препятствует эффективному учебному процессу;

— асинхронность: в процессе обучения как обучающиеся, так и преподаватели могут реализовывать технологию обучения и учения независимо от времени по удобному для каждого расписанию и темпу;

— массовость: количество обучающихся не ограничивается. При этом все они имеют доступ к источникам учебной информации (электронным библиотекам, базам данных и т. д.) и могут общаться как друг с другом так и с преподавателем через сети связи или с помощью других средств информационных технологий без каких-либо ограничений.

Использование дистанционных технологий обучения приводит к созданию принципиально новых моделей обучения, которые предусматривают проведение конференций, самостоятельную работу обучающихся с информационными полями из разных банков знаний, проектные

работы, тренинги и т. д. Существенно меняется при этом роль преподавателя [1; 2; 3]. На него возлагаются такие функции как координирование познавательного процесса, корректировка изучаемого курса, консультирование слушателей, управление их учебными проектами. В профессионально-технических учебных заведениях дистанционные технологии обучения могут употребляться при организации учебного процесса по программам первичной профессиональной подготовки, переподготовки или повышения рабочей квалификации. Считаем целесообразным дистанционно изучать такие циклы как «Цикл общепрофессиональной подготовки», «Цикл профессионально-теоретической подготовки», «Цикл предметов, которые свободно избираются», «Теоретическую часть цикла профессионально-практической подготовки». При этом каждое направление представляет собой самостоятельный дистанционный курс, комплексно-методическое обеспечение которого должно отображаться в информационном, содержательном, контрольном, коммуникативном и обобщающем блоках. Идея применения элементов асинхронного и синхронного дистанционного обучения в ПТУЗ приводит к тому, что какую-то часть учебных дисциплин (или дисциплины) учащиеся осваивают в традиционных формах обучения, а другую часть дисциплин (или дисциплины) — по технологиям сетевого обучения. Соотношение частей определяется готовностью образовательного учреждения в целом к подобному построению учебного процесса, а также желанием и техническими возможностями учащихся. Фактически мы получаем смешаное обучение, которое сохраняет общие принципы построения традиционного учебного процесса в ПТУЗ и состоит из трех этапов: дистанционного изучение теоретического материала, освоение практических аспектов в форме дневных занятий, сдача экзамена или выполнение выпускной квалификационной работы. Цели обучения при смешанной форме остаются прежними, меняются средства и методы их достижения. Система контроля знаний получает новые возможности: использование контролирующих систем в сочетании с традиционными методами. Для практической реализации

дистанционного обучения в основном используют специализированные информационные системы, которые называют системами управления обучением (learning management system, LMS) или иногда — программно-педагогическими системами. Как правило, такие информационные системы состоят из наборов модулей, обеспечивающих полноценное дистанционное обучение. Сейчас существует довольно широкий спектр разработанных систем управления обучением, которые распространяются как на коммерческой основе, так и свободно. Вместе с тем, учебные заведения могут разрабатывать подобные системы и «под себя». В общем, эффективность дистанционного обучения зависит от качества использованных материалов (учебных курсов, методических разработок и т. д.) и мастерства педагогов и преподавателей-тьюторов, участвующих в этом процессе. Поэтому при разработке дистанционного курса педагогический и содержательный аспекты организации дистанционного обучения (как на этапе проектирования курса, так и в процессе его использования) являются приоритетными.

Делая выводы, отметим, что наиболее эффективной и перспективной формой подготовки будущих квалифицированных работников в системе профессионально-технического образования является дистанционное обучение, которое основывается на использование дистанционных технологий; предусматривает индивидуализацию обучения, интенсификацию самостоятельной работы, повышение мотивации учащихся за счет разнообразия форм работы; предлагает свободный график обучения, самостоятельное определение темпа обучения, независимость от места нахождения, обучение без отрыва от производства, доступность всем слоям населения. Считаем целесообразным применение в профессионально-технических учебных заведениях модели смешаного обучения, которая представляет собой использование распределённых информационно-образовательных ресурсов в стационарном обучении с применением элементов асинхронного и синхронного дистанционного обучения, при этом сохраняя его преимущества и исключая недостатки. Ефективность данной модели на практике главным обра-

зом будет зависеть от качественной разработки четырёх основных её составляющих: взаимодействия преподавателя и обучающегося; выбора педагогических технологий; разработки методических материалов и способов их доставки; организации обратной связи. Дальнейшие работы будут посвящены разработке комплексно-методического обеспечения для дистанционной формы обучения в профессионально-технических учебных заведениях строительного профиля.

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Section 4. History of Education

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Tendencies of primary education development in Ukraine during the period of emergence of democratic changes in social life (1984–1991)

Abstract: The article deals with the problem of primary education development in Ukraine during the period of emergence of democratic changes in social life in the mid-1980s and early 1990. On the basis of analysed sources the author of the article has defined the characteristic tendencies of its development such as the change for a four-year primary education; the systematic schooling starting from the age of six; the revival of national primary schools, the development of the content of primary education on the basis of the new methodological principles; optimization of educational process organization, etc.

Keywords: primary education development; structure, organization and content of primary education; junior pupils; tendencies; Ukraine.

The dynamism of modern social changes in Ukraine is attended by the reformation in education system; first of all it concerns the first level of general secondary education — primary school which is the basis for general educational and social competencies necessary for further successful training and self-realization of a person. At the present time specialists in the sphere of primary education focus their attention on complete changing of the legislative and regulatory field, on defining the optimal time for studying at the first level, on modernization of the content of primary education, etc. Similar tendencies took place in the mid-1980s and early 1990 when reformation of primary education was performed under the conditions of emergence of democratic changes in social life. Consequently, the study and analysis of them can be the basis for solving contemporary educational problems.

Historiographical analysis has shown that certain aspects of primary education development in Ukraine during the mentioned period were described in the research works of such modern scientists as L. D. Berezivska, L. S. Bondar, Y. P. Kodliuk, O. Y. Savchenko and others. But they did not define clearly the tendencies of primary education development in Ukraine in 1984–1991, that is why the main aim of this historical and pedagogical research is to state them.

Socio-political (the proclamation of "perestroika", democratization, "glasnost") and socio-economic (scientific and technological advance, intensification and computerization of economics) transformations in the mid-1980s required modernization of education system, bringing it into line with the requirements of social development. In 1984 the Soviet government initiated a reform of secondary and vocational schools which was characterised by the following tendencies: improving the quality of children's education and upbringing, development of pupils' labor training and vocational guidance, improving educational content, providing the system of education with qualified teaching staff, improving the structure of secondary schools, development of its teaching resource base, etc. [7, 17–18]. Sharing the ideas mentioned by the modern Ukrainian scientist L. D. Berezivska that the proclaimed reform was a declarative one in nature [1, 306] we suppose that its adoption opened a new stage in the development of primary education.

First of all, this reform caused changes in the structure of primary education. According to the Decree adopted by the Central Committee of the Communist Party of the Soviet Union and the Council of Ministers of the USSR under the title "On Further Improvement of General Secondary Education of Youth and Improvement of Conditions for Working at Secondary School" (1984), the four-year period of studying was introduced into primary school instead of three years, as it had been before the early 1970s [7, 35] and we consider this fact to be a positive one. It was supposed that structural transformation would enable more thorough training of the pupils in reading, writing and numeracy, teaching them basic labour skills and at the same time it would reduce their load and facilitate further mastering of the fundamentals of sciences in middle schools [7, 18].

The change for a four-year primary school was carried out by means of lowing the age limit concerning the beginning of systematic schooling to six years, and we consider it to be an innovative tendency of the researched period. It is important that the possibility and appropriateness of schooling of six-year-old children were proved during a decade of experimental studies carried out by the scientists at research institutes of pedagogics and psychology of the Ukrainian SSR [2, 93–94]. Organized change for the systematic training of six-year old children started in 1986/1987 school year. Taking into account the parents' wishes, the level of children's development, the appropriate training environment and trained teachers 358,3 thousand six-year-old pupils were taken to the first classes (it was only 50.2% of their total number), nearly 65% of them studied at schools, and the rest were trained on the basis of kindergarens [10, 26]. At the same time seven-year-old children were allowed to go to the first class as well, but they studied for three years at primary school. The Ministry of Education of the Ukrainian SSR should have completed the mentioned change till 1990, but this task was not carried out due to several reasons (lack of necessary training conditions, heavy material expenses, unpreparedness of teachers, etc.). Therefore, during the 1986–2000 period there were two types of primary schools functioning in Ukraine: three- and four-year primary schools.

Structural transformations in primary education system caused revision of the content of education. In 1985 a national Typical curriculum for general secondary school was adopted; and transitional curriculums for all schools in the USSR were developed on its basis [1, 309]. The Soviet schools started using it in 1986/1987 school year. Taking into consideration the different duration of studying junior pupils were studied according to different curriculums. The following characteristics were peculiar to the curriculum for the four-year of studying: weekly load was reduced, the time allotted to Labour Training, Fine Art and Music was doubled; a new integrated course "Acquaintance with Environment" was introduced into the 1st — 2nd classes [6, 8].

According to the curriculums new pragrammes were developed; they contained the detailed information about the scope of subjects, their world-view, educational and polytechnical orientations were intensified. It was the first time when a chapter under the title "Formation of Educational Abilities and Skills" prepared by O. Y. Savchenko was introduced into the programmes for primary classes. Concentricity principle concerning teaching particular aspects in Language and Mathematics was reduced and linearity principle in the arrangement of teaching material was intensified. In general it gave a certain float time and intensified the systematic and sequence principles in education [8, 60]. At the same time the content of primary education "was changed without its scientific justification, at the party's behest" [9, 3] and it remained a unified one.

We consider the following achievement to be of a great importance: a considerable renewal of text-books prepared by the Ukrainian methodologists for primary school; an issue of handwriting exercise-books with printed basis as a part of educational and methodical complex prepared practically for all subjects [4, 89].

We should pay attention to the fact that in order to improve the arrangement of the process of education and to increase its efficiency it was decided to reduce the number of junior pupils in a class to 30 children (instead of 40) starting from 1986 [7, 41]; and we consider it to be a positive tendency.

The plenary meeting of the Central Committee of the Communist Party of the Soviet Union (February,

1988) influenced greatly the further development of primary education: a new ideology concerning school education, in particular democratization, humanization, differentiation, etc. was proclaimed [1, 318]. The analysed regulatory documents and archives indicate that democratization in education influenced the appearance of new types of educational establishments (gymnasium, lyceum); the number of schools and classes with advanced study of some subjects (Foreign Language, Music, Fine Art) increased; author's schools were opened. Their functioning made differentiation and individualization of education in accordance with junior pupils' needs and abilities possible. In rural areas and a little later in cities special educational establishments such as "School — Kindergarten" were popular, they provided for sequence principle in upbringing and education of children of preschool and junior school age.

The adoption of the Law On Languages in the Ukrainian SSR (1989) and the Declaration about State Sovereignty of Ukraine (1990) caused the revival of national schools. As a result some transformations took place in the organization and content of primary education. The number of junior pupils trained in the Ukrainian language increased because a lot of schools where Ukrainian was used in the process of teaching appeared and the number of Ukrainian-speaking classes in schools with the Russian language of teaching increased significantly [11, 24]. The content of primary education was filled with the national component due to the following reasons: a great attention was paid to the study of the Ukrainian language; new subjects (Ethnology and Native Land) the main aim of which was to get junior pupils acquainted with national history, culture and traditions were introduced; the material containing political and ideological content was removed from the curriculums and textbooks and it was filled with the Ukrainian component [3, 128–129].

Under conditions of changing ideological and pedagogical orientations there was a tendency to deunify the content of primary education. In 1989 the Ministry of National Education of the Ukrainian SSR suggested to consider some variable curriculums along with the basic one. School Board was allowed to choose the variant of the curriculum taking into account pupils' interests and needs, appro-

priate teaching resource base and teachers' education [5, 4]. At this time the first variable programmes on Music, Labour Training and Creative Work appeared [3, 129].

Democratization in education allowed teaching staffs to choose one of the suggested curriculums as well as to participate in their development directly. A new component of the curriculum — a school one — provided this process with wide opportunities. The hours left for this component were completely at the disposal of the School Board and used for the arrangement of individual and group lessons and consultations with junior pupils as well as intensification in studying certain subjects (Mathematics, Music, Labour Training) and introduction of new subjects (Eurhythmics, Ethnology, Native Land) [5, 2–3]. The identification of the school component within the curriculum was a step towards deunification of the content of primary education; it caused the variability of the educational process and allowed to take into account junior pupils' individual characteristics, interests and needs.

Abandoning a strict subjectcentrism through the introduction of some integrated training courses (Music and Motion, Creative Work, Man and Environment) was an innovative tendency of the researched period. Their introduction made weekly load in primary classes shorter, the number of subjects was reduced, and as a result the overload for junior pupils was eliminated [3, 128].

Thus, socio-political, socio-economic and pedagogical transformations taken place in Ukraine in the mid-1980s and early 1990 influenced the development of primary education. We consider it appropriate to define two stages of this process and to show the specific tendencies of each of them: *I (1984–1988)* — the change for a four-year primary education; the systematic schooling starting from the age of six; the parallel functioning of three- and four-year primary schools that caused the development of various curriculums, programmes and textbooks; structuring the content of teaching material according to the linearity principle; the creation of new textbooks for primary classes by the Ukrainian methodologists; optimization of educational process organization because of reducing the number of pupils in classes; *II (1988–1991)* — the emer-

gence of new types of educational establishments for junior pupils that influenced differentiation and individualization of training positively; the revival of national primary schools; democratization and humanization of primary education; the development of the content of primary education on the basis of the new methodological principles (depoliticiza-tion, national orientation, deunification, variability, differentiation, integration).

The accomplished research does not reveal all the aspects of the defined problem, consequently there are a lot of problems concerning the development of primary education in the mentioned period which require further fundamental research.

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Section 5. Education for Professors and Teachers

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People's socioeconomic levels of physical activity in Tirana, Albania

Abstract.

Aim: Our aim was to assess the levels of physical exercise in the adult population of Tirana, Albania, a country undergoing particularly rapid transition associated with significant changes in lifestyle including physical activity.

Methods: A cross-sectional study was conducted in Tirana in 2015 including a representative sample of 850 adults aged >18 years (500 women, mean age: 39.7±18.8 years; 345 men, mean age: 41.3±18.4 years). Participants were asked about their levels of engagement in physical activity (categorized in the analysis into: low, moderate, and high). Data on demographic characteristics (age and sex) and socioeconomic factors (education, employment, income and social status) were also collected.

Results: Overall, 168 (21.8%) of participants reported high levels of physical activity as opposed to 30 (18.0%) of individuals who reported low levels of exercise. The rates of physical activity were similar in men and women. Energy expenditure was inversely associated with age, body mass index and with abdominal obesity.

Conclusion: This study provides useful evidence on the extent and distribution of physical exercise in the adult population of Albania. Levels of physical activity in this representative sample of Albanian adults were low which raises concerns. Public health programs and interventions should raise the awareness of the general population in Albania with regard to promotion of physical activity.

Keywords: energy expenditure, physical activity, physical exercise, physical inactivity.

Introduction

In industrialized countries, the inverse (protective) association of leisure-time exercise with coronary heart disease (CHD) is well-established [1; 2]. However, survey data on physical exercise in transitional countries of Southeast Europe are scarce, especially for Albania. Thus, accurate data on Albanian population levels of lifestyle/behavioral factors including physical exercise are scant. Yet, useful evidence on distribution of behavioral characteristics in Albanian adults stems from a cross-sectional studies conducted in Tirana in 2003 including adults aged 25 years and over. According to these studies which presumably included a population-representative sample of adults, the lifetime prevalence of smoking was 61% in men and 24% in women [3]; the rate of predominantly sedentary leisure-time activities (mainly reading and watching television) was 49% in men and 58% in women [4]; the prevalence of obesity (defined as body mass index (BMI) $\geq 30 kg/m2$] was 22% in men and 31% in women [5]; the overall prevalence of diabetes was 6.3% (6); and the prevalence of hypertension was 37% in men and 27% in women [7]. A more recent study conducted in Albania [7], provided evidence for the importance of leisure-time inactivity as a modifiable risk factor for CHD, which is consistent with the literature elsewhere.

The aim of the current study was to assess the levels of physical exercise in a representative sample of adult residents in Tirana city, the Albanian capital.

Methods

A cross-sectional study was conducted in Tirana in April-July 2015 including a representative sample of 845 individuals aged >18 years (500 women, mean age: 39.7±18.8 years; 345 men, mean age: 41.3±18.4 years).

An interviewer-administered structured questionnaire included information on socioeconomic factors, behavioral factors (including leisure-time exercise) and conventional coronary risk factors. Anthropometric measurements included weight,

Height and waist and hip circumferences.

Participants were asked to assess their overall levels of physical exercise including physical activity at work, leisure time physical exercise, and housework physical activity. In the analysis, physical activity was categorized into: low, moderate, and high.

Data on demographic characteristics (age and sex) and socioeconomic factors (educational level, employment status, income, and social status) were also collected.

Sixty-one participants provided partial data and, therefore, were excluded from the analysis. Chisquare test was used to compare differences in physical activity levels between different sociodemographic and socioeconomic groups of study participants. A p-value of d"0.05 was regarded as statistically significant. Statistical Package for Social Sciences (SPSS), version 19.0, was used for all the statistical analyses.

Results

Overall, 168 (21.8%) of participants reported high levels of physical activity as opposed to 30 (18.0%) of individuals who reported low levels of exercise. The rates of physical activity were similar in men and women (P=0.281) (Table 1]. As expected, younger individuals (aged 18–32 years) reported the highest levels of physical exercise compared with their older counterparts (P<0.001). Educational attainment was positively and significantly associated with physical activity levels: highly educated participants reported significantly higher rates of physical exercise compared with the low-educated participants (P<0.001). A lower income level and/or a lower social status were both positively related to physical inactivity (P=0.011 and P<0.001, respectively). As predicted, retired individuals reported the lowest rates of physical exercise, followed by the unemployed participants (overall P<0.001) (Table 1].

We assessed elements of construct validity of the exercise questionnaire in the Albanian context in the representative sample of adult men and women included in this survey. As expected, energy expenditure was inversely associated with age (Pearson r = – 0.37 in men, r = – 0.49 in women), body mass index (age-adjusted r = – 0.63 in men, r= – 0.52 in women) and with waist-to-hip ratio reflecting abdominal obesity (r = – 0.31 in men and r = – 0.39 in women) (all Pd"0.001]. There was no significant association of physical exercise with smoking in either sex (not shown). In contrast with Western societies, there was an inverse association with social position (r = – 0.19, P=0.002) and educational level (r = – 0.16, P=0.013) in men only (data not shown in Table 1).

Table 1. – Distribution of physical activity levels in a population-representative sample of Tirana residents in 2015. Levels of physical exercise

	High	Moderate	Low	P-value
Sex:				
Men	73 (23.2)*	175 (55.6)	67 (21.3)	0.281
Women	100 (21.3)	246 (52.5)	123 (26.2)	
Age-group:				
18–35 years	76 (37.3)	106 (52.0)	22 (10.8)	
36–45 years	35 (26.3)	79 (59.4)	19 (14.3)	<0.001
> 45 years	60 (14.3)	221 (52.6)	139 (33.1)	
Educational level:				
Low	12 (9.1)	65 (49.2)	55 (41.7)	
Middle	64 (21.6)	161 (54.4)	71 (24.0)	<0.001
High	89 (27.4)	180 (55.4)	56 (17.2)	

Income level:				
Low	15 (15.3)	47 (48.0)	36 (36.7)	
Middle	109 (21.5)	274 (54.2)	123 (24.3)	0.011
High	44 (26.3)	93 (55.7)	30 (18.0)	
Social status:				
Low	11 (12.6)	41 (47.1)	35 (40.2)	
Middle	133 (21.5)	346 (56.0)	139 (22.5)	<0.001
High	21 (35.6)	25 (42.4)	13 (22.0)	
Employment status:				
Employed	97 (30.9)	176 (56.1)	41 (13.1)	
Unemployed	30 (20.4)	80 (54.4)	37 (25.2)	<0.001
Students	21 (36.2)	34 (58.6)	3 (5.2)	
Retired	24 (9.7)	122 (49.4)	101 (40.9)	

* Number of individuals and row percentages (in parenthesis). Discrepancies in totals are due to missing values.

Discussion

This study provides useful evidence on the extent and distribution of physical exercise in the adult population of Albania.

Energy expenditure in leisure-time physical exercise is a substantial protective factor for cardiovascular disease and other health conditions, a finding which has been consistently reported in different epidemiologic studies conducted all over the world [1; 2].

The prevalence of physical exercise during the communist regime in Albania, where until 1990 private cars were banned and agriculture was not mechanized, is traditionally supposed to have been high [4; 8]. Subsequently, car ownership increased rapidly and pedestrian areas became more limited in Tirana, reflecting a rapid transition towards a mechanized society, in which leisure-time exercise becomes a useful indicator of the overall rate of physical activity among adults [4; 8]. A prior study including a population-based sample of men and women aged 35–74 years reported that 19% of male and 26% of female participants had extremely low energy expenditure levels of <45 Kcal/day [8]. Conversely, an earlier study conducted in 2003 reported predominantly sedentary leisure-time activities (mainly reading and watching TV) among 50% of men and 58% of women in Tirana [4]. It has been argued that the low extent of leisure-time exercise among Albanian adults is a public health concern impacting also on future trends of obesity, impaired glucose tolerance, diabetes, hypertension and cardiovascular disease [7].

Besides physical exercise, studies have linked television (TV) viewing with increased rates of obesity (9–10), a finding which has been replicated in the Albanian population too (8).Further more, a prior study conducted in Tirana reported an association of TV viewing with excess cardiovascular risk in women, which was independent of several conventional coronary risk factors including lifestyle characteristics [7].

A potential limitation of our study lies in the possibility of information bias. Differential reporting of leisure-time exercise or other lifestyle/behavioural characteristics is a possibility that we cannot dismiss. However, there seems to be no obvious reason why different socio-demographic and socioeconomic subgroups of participants should under-report or over-report on the levels of physical exercise [8].

In summary, our study provides useful information on the levels of physical activity in the adult population of Albania, a transitional society in the Western Balkans. Particularly the leisure-time activity levels were quite low in this representative sample of men and women in Tirana.

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Section 6. Comparative and International Education

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The implementation of Character Education program in American public schools

Abstract: The concept, purpose, content, methods and ways of Character Education program in American public schools are analyzed in the article. The importance and geography of its use in the schools of the USA are revealed.

Keywords: moral education, Character Education program, American public school, methods of moral education.

Moral education in the United States has been an integral component of studying process since the foundation of American public education and on. It was taught on the basis of Christian values common to all religions of the country. The scheme seemed to work successfully in the United States until the 1960s, the year when a number of American students' parents refused to use biblical values within the school process in public schools. In response, in 1962–1963 the US Supreme Court had forbidden prayers and Bible use in American public schools. Since mid 1960s moral education in US schools began to develop in three areas: 1) moral education based on Christian moral values (practiced mainly in religious and private American schools); 2) so-called programs of moral education, free of moral values, which meant mostly that students were to solve moral dilemmas in the classroom under the guidance of a teacher as a supervisor of discussions on moral subjects (established by public schools); and 3) Character Education programs in US public schools that were aimed at instilling traditional moral values in American society.

Analyzing the reason why character education is vital for modern American public schools, first of all, we must mention weakening of the role of the family and the church in youngsters' education; aggravated cases of early sexual experience of young Americans; students' alcohol and drugs abuse; violence and the use of weapons at school; growing disrespect towards authority, police, laws and regulations; significant loss of civic and patriotic engagement, etc. Deviant behavior of American students has become extremely threatening and the statistics that confirm this information are described as a burning issue of public concern. For example, the number of murderers in the US aged between 15 and 25 is seven times higher than in Canada, and in 40 times — than in Japan. The country leads the list of teenage pregnancy, abortion and drug addiction among the developed world. Over the past 30 years, teenage suicide has increased in 3 times. The findings of the study among students of Rhode Island showed that one out of three boys and one out of two girls (6–9-grades) find acceptable to force the girl to sex if the couple met six months or longer [5]. According to the report of the National Research Council in 1992, the USA is the most vital country among developed countries in the world [2]. All this makes American scientific community intensify efforts that are aimed at teaching character for youngsters in modern public schools.

Character education was guided by two main objectives throughout the American history: to help the younger generation to develop mental abilities and improve mental capacity. Regarding these objec-

tives, the main task of character education in early American schools of the 19th-early 20th century was guided by educating students on a personal example of the teacher and the curriculum, which was based on biblical values. The Bible was the major source of morality and religion for students and teachers in public schools during the first centuries of American public education. At the time when arose the question which Bible to use and what doctrines to follow, there appeared 'McGuffey Readers'. The author included in the reader favorite Bible stories, added poetry, and heroic tales. Within the Writing, Reading and Maths classes American pupils were also learning the life lessons of honesty, love to surrounding world and people, kindness to animals and civil service [1].

Character education program is a technology that involves instilling of traditional American values in the class and in the extra-curricular activities using mainly games and role-play techniques. It provides necessary knowledge how to be a devoted family man, a skillful worker, leading a healthy lifestyle and a true citizen — the patriot of the USA.

Methods of Character education program are particularly aimed at instilling traditional moral values common for Americans. The key and most effective method is the project method that is realized in public life and student's behavior. This method provides the chance to fully implement practical and theoretical knowledge in the real surrounding. Another popular method is a game. It is also actively used in American educational system. The game provides students with the most suitable surrounding for a vivid demonstration of the gained knowledge concerning moral values.

Moreover, teaching students character education effectively also means employing highly professional teachers. American scientist Thomas Lickona believes that school teachers themselves must adhere to certain moral rules and educate students on their own example. The researcher pointed out several requirements for good collaboration between teachers and students: a) tolerance to students, which means caring and supportive attitude towards them, readiness to help o get rid of negative communication experience (the use of communication and dialogue is highly recommended); b) the use of team educational influence, that is understood as creating a moral educational community, help students get to know one another and reveal each other's personality, teach students to respect and feel responsible for each other; c) discipline maintenance in the classroom through the development and implementation of codes of conduct, that can be a model for students to obey the laws and respect the legislators; d) acting in accordance with the democratic principles and accountability, the creation and support of democratic atmosphere in the classroom, engaging students in the process so that they can feel responsible for the changes in moral behavior of the class; d) building the educational process on the principles of humanism in order to instill moral values to students using the curriculum and 'morally enriched subjects' (history, literature, etc.) as well as the principles of science programs, which contain basic information regarding moral values and their meaning ('Facing History and Ourselves' and 'The Heartwood Ethics Curriculum for Children'); g) training in groups to teach students to appreciate the work of others that provides the ability to see themselves as team members who try their best for the common good; c) promotion of students' moral reasoning as a part of educational process, working on essays, reading, conducting surveys, debates and discussions in the class; e) teaching students to resolve conflicts and learn relevant skills of courtesy and morality. In addition to compliance with the above-mentioned requirements for moral education during the educational process at school, American educators pay a great deal of attention to the moral education of children outside the school, consequently they actively involve parents in this process, so that they learn how to develop the best features in their children and help them morally develop [3].

According to American scientists K. Ryan and A. Winn there are other methods of character education and teaching children morality: definition of the content and nature of the values and skills that are necessary to develop in children; creating the situations that allow children learn moral values and use them in action; compliance to determined moral values and norms as well as age and individual needs of students; development and usage of rewards system for educational achievements; systematic verification

of the results of the educational work; analysis of moral education, introduction of relevant changes [6, 57].

There are a lot of various training tools that were developed to teach students character education. They are programs, textbooks and manuals on character education. In this regard, the most valuable learning tool is the development of codes of education and pupil's compliance to the Code in real life. The Code in this context is seen not only as a teaching tool but also as a motivational system which is central in the educational value of character education.

Since the 1980s, a large number of communities from different US states have launched the revival process of Character Education programs in their local schools. For example, in Baltimore County, Maryland, teachers and school administration initiated discussion aimed at distinguishing the values that are common to all local residents that must be necessarily taught to students in public schools of their state. In St. Louis, Missouri, business leaders were concerned with the sharp decline of the teaching effectiveness of high school students and manifestations of their behavior were less likely to be called socially acceptable. Consequently, the leaders of businesses founded 'The Association of Business Schools and Communities' in order to promote effective studying and education of students at the school, contributing to their quality and decent education.

In July 1992, The Josephson Institute of Ethics hosted a summit conference in Aspen, Colorado. A diverse group of ethicists, educators and youth-service professionals convened to find ways to work together and boost their character education efforts. 'The Aspen Declaration' that concluded this meeting would outline eight basic principles of character education. According to it, education had to be characterized as character education of children, aimed at the development of positive character traits and values [4].

Today, character education is an integral part of American secondary public schools in most states. Thus, in the schools of Virginia, Utah, Tennessee, South Dakota, New York, Nebraska, North and South Carolina, Kentucky, Illinois, Georgia, Florida, California, Arkansas, Alabama and Alaska character education is mandatory. Reporting high level of crime and violence in New York in 2000 Project 'SAVE' — 'Safe Schools against Violence in Education Act' was approved, in Alaska — created 'Alaska Character Education (ACE) Partnership' and in 2006 the Alaska Code of Charter was adopted. Particular attention should be paid to section 14.33.200, which requires all schools to prevent harassment, violence and bullying and implement teaching moral values (Alaska Statute Section 14.33.200). As for West Virginia, Connecticut, Hawaii, Missouri, Montana and Vermont public secondary schools are encouraged to teach character but there is no legislative approval. In all other states of the USA, there are certain documents, projects, statutes or regulations by which character and moral education are encouraged and funded by the state.

To conclude, it is necessary to mention that Character Education program has demonstrated its effectiveness in American public schools so far. This program is based on objectives, principles, methods, forms and means of training activities, and provides a tight connection between school and family, school and community. Teachers and parents have to demonstrate their personal example how should a decent citizen and family member behave. In such a way, American education system has valuable experience for Ukrainian education system concerning character education implementation.

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Increasing teacher candidate responses through the teaching as a team sport

Abstract: Education research literature is often viewed to not put enough emphasis on two particular and crucial ideas:

1. Student achievement is mostly affected by an effective teacher rather than all other factors combined.

2. When teachers get together to talk in concrete, precise language about instruction and student work, their teaching dramatically improves and student achievement rises [1].

This paper investigates the importance of teaching as a team sport in order to gain a deeper understanding of shared learning experiences. Semi-structured interviews were conducted on 352 teacher candidates. The results indicate that the development and implementation of teaching as a team sport increased student reflective response and engagement.

Introduction

Despite the importance that historians have placed on teaching and collaboration, this partnership almost does not exist among teachers. The reality is particularly frightening and problematic in Albanian schools. Albanian teachers are aware of the significance of team sport in theory, yet they exhibit resistance towards this innovation in teaching. Although this collaboration is required amongst students, teachers fail to establish the same environment and relationships with their colleagues. Changing forces continuously require teachers to hone their skills, through attending seminars of professional development for eight hours. Nonetheless, these events rarely describe the reality since teachers work in isolation and do not collaborate with each other. Hence, each classroom represents its own 'microcosm' [2].

Literature Review

Richard Dufour brought has referred Data Teams and Professional Learning Communities as "professional learning communities" (PLCs). Weekly meetings were organized among teachers in order to offer them the opportunity to create common assessments, analyzes and discussions of results and strategies to improve lesson plans. These meetings focused on three questions [3].

What's working with our students?

What isn't working with them?

Which students need extra help?

This transparency and effective collaboration have turned professional learning communities, or, as they are also called, data teams, into the most promising strategy for improving instruction and student performance. Today, professional learning communities, or, as they are also called, Data Teams, are thought to be the most promising strategy for improving instruction and student performance [4].

Always is raised the question: What makes these teams so powerful and empowering?

It's this simple fact: you do not become an extraordinary teacher alone. Taking this journey is less about attaining perfection and probably more

about being a better teacher in the future, improving acknowledging imperfection and fulfills the necessity for competency and complementariness among colleagues.

Data teams allow us to magnify our strengths, and work with other teachers who provide different but equally important strengths. While no single person will possess every dimension of an extraordinary teacher, the team is more likely to have all of them. And when teachers come together and talk about teaching, they realize that improvement is something they can generate.

Methodology

The purpose of this present study was to provide educators with a better understanding of how teaching as a team sport improves dramatically instruction. We recently surveyed 352 teacher candidates, in grades kindergarten through twelve. Here is what they told us about collaboration in their schools. (See Tab. 1) [5, 85].

Even though 75% of the teachers thought collaboration improved instruction (Question 1), our remaining questions uncovered an alarming disconnect between "knowing and doing". While teachers clearly understood that collaboration was important, 34% felt like they were "on their own" when it came to improving student achievement (Question 2). 19% percent of the surveyed teachers did not think that their materials or instruction matched their same grade colleagues, while another 12% were not sure. (Question 3). Nearly half of the teachers did not see their schools calendars, curriculum maps, or scope and sequence charts helping their situation (Question 4). Half of our surveyed teachers would not like to see their own children become teachers, because it is a lonely profession (Question 5).

Table 1

Personal opinion…	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
1. Instruction are improved evidently when teachers get together to discuss assessment results and teaching strategies	2%	9%	60%	25%	4%
2. I feel like I'm on my own improving the achievement of my class	6%	45%	30%	10%	9%
3. Instructional materials and practices match with those of my grade-level colleagues.	3%	16%	47%	13%	21%
4. Actual curriculum guide, calendar, or scope and sequence ensure that teachers are teaching the same thing at the same time.	3%	16%	45%	12%	24%
5. I would be thrilled if my son/daughter decided to become a teacher.	7%	44%	32%	12%	5%

Results

Nowadays schools think that have Data Teams, but they don't. Teachers get together; organize field trips, lunch duty, and various "housekeeping" issues. These topics are important, if we take in consideration that real teacher work has to focus on what is being taught, related to standards, the way students are learning and behaving, and what is necessary to be done to get all students to improve. Effective data Teams of teachers are responsible for student success.

Data Teams are not random tools, they are organized meetings among teacher offering the imperfection levels any time they meet and share issues together.

Forms are simply a way to structure the conversation so that all members participate; stay focused, and complies with groups' norm. Agendas that set time limits and topic boundaries can be especially helpful with hard –to- discuss topics by providing structure and psychological safety. They also can come in handy if one or two members monopolize the discussion or elbow others out of the discussion. Forms and agendas may help teachers spell out ground rules and expectations for their work, including how consensus is defined, how conflicts will be

resolved, and how time will be spent. But they are not the real work, and if forms get in the way, change them or get rid of them!

Discussion

Developing a Data Team, or at least a Data Team attitude, needs a lot of efforts. It is unrealistic to think that we can flip our school to Data Team thinking overnight. Instead, take small steps that can start paving the way for active collaboration between teachers. The goal of these undertaken action is to "get every brain in the game". [6–88]

Approach teachers whose skills you respect, and ask them to observe your teaching and offer some suggestions on implemented methods.

You may ask to sit in the class. May say something as simple as, "I always hear students leaving your class still discussing what you taught. I'd love to see how you get that level of engagement. Do you mind if I sit in on one of your classes to observe? Or, "I noticed your students mastered this week are indicator. What are you doing?

You may ask colleagues about conferences or workshops that they have attended. Yu can mention an article you have read or share a brochure on a workshop in another teacher's area of expertise.

Don't think that because you are the "rookie" you have nothing to contribute. The flow of information doesn't always go from experienced teacher to new teacher. Just as you value the child in your class who asks pertinent questions, your questions are essential to the growth of yourself and your colleagues. Your questions encourage more experienced teachers to consider practices and the basis for them. You are also likely to hold the most current knowledge of cutting-edge educational research that can and should be discussed.

In case you and your colleagues are initially reluctant to talk about student achievement, common assessment, and lessons, it might be safer to discuss and collaborate on student behavioral issues. Everything begin here "Teachers talk about teaching"

Conclusion

Considering starting or reviving a Data Team in our school, we have to remember the fact that simple plans work best. Table 2 provides modest suggestions for activities in which your Data Team could be engaged.

Table 2. – Suggestions for Data Team Activities [7, 88]

What you might do:	Why you would do these things:
• Collaboratively score student work • Analyze student data on a standard • Identify lessons for remediation or en richment • Adjust lessons • Share lessons • Inform consistent grading procedures	• Develop common understandings of the indicator • Pre-testing to plan instruction • Establish a common rigor • Select exemplars to share

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Section 7. Physical Education

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Intervention programs used regarding postural deviations among children (Review article)

Abstract: Because of the prevalence of poor posture on children it is necessary that the scientists should be focused more how to prevent and to correct the existed posture deviations in children during school time. The purpose of this review article was to investigate about the intervention programs used to reduce this phenomenon which is determine as an aesthetic problem as well as health problem on children's later life. It is recommended that the treatment of poor posture via exercise should be applied before that the growth process is finished in order to have significant feedback on posture realignment. Furthermore the earlier posture deviation will be detected the higher will be the chances to prevent the aggravation of existed postural deviation. Method: Our collected data process were focused on selection of those research articles that investigated the effectiveness of exercises programs on posture correction during physical education class among children of 8-14 years old. By using Jab Ref, Pub Med and Research Gate as website-sectors to gather scientific information due to poor posture prevention in children, we gained 20 research articles. Because of children's age used as selection criteria of scientific papers, we analyzed 12 of them gained more from Pub Med sector. Discussion and conclusion: In this review is shown that the correction of poor posture at children has become one of many issues that attracted the attention of scientific researchers. However further studies are needed to be done in the future because there is not a unified intervention program for posture correction in children that is classified as the most effective.

Keywords: poor posture, school age children, 8-14 years old, posture prevention program.

Introduction:

Posture has always been studied from medical, physiotherapist and orthopedics but this phenomenon has lately become the focus of research and studies even by physical educators and researchers. The reason for the concern of many international scientists about posture deviation was its high prevalence among children of school age [9, 139 – 152].

Except aesthetic damages, poor posture also negatively affects the health and the quality of many people life [5,517].

A child with poor postural stability will demonstrate difficulties to remain upright in their seat, dressing and undressing easily or being as much active as their peers without postural problems. Holding good posture against gravity and executing fine and gross motor activities by spending the same energy as their peer, it is not easy for those who have poor posture [8, 1-5].

Poor posture is a production of differences occurring on muscular system structure which are mostly accompanied by weak and lengthened agonist muscles combined with tight and strong antagonist muscle [6,567-74] Maintaining good posture is very important because it enable the body to function more efficiently regarding to different motor activities, health and appearance. [5,517] Furthermore person with a good posture gives the impression of a strong self confidence person and initiative, while poor posture the opposite impression. Having good posture should not

be confused with the ability of the body to maintain only the static posture position but also by keeping the proper posture alignment using the body during dynamic activities. [5,517] When human body part are in a good alignment it operates best while sitting, standing, walking or executing different daily physical activities. Postural problems are negatively influenced by different factors such as: environmental influences; excessive body weight; growth handicaps; congenital defects and reduced muscle strength [5, 518].

Because of long time spending on school it is considered "the perfect place and time" to educate children with a correct posture behavior. Being sitting for prolonged time on the desk during school time may cause postural problems if they don't have information how to take care about their spine [7, 78–84].

This study demonstrated that school is the place where physical educators may prevent posture deviation even to correct those that exist. The promotion of physical exercises as an attempt to correct and back care program to prevent poor posture among children has been applied by many scientific researchers. But the contention that postural deviation will be corrected via exercises continues to be unsupported [6, 567–74].

Methods:

Navigating on internet by using some different website-research-sectors such as: Jab Ref, Pub Med and Research Gate we collected data regarding scientific information how to prevent and correct the existed poor posture. Even why many articles were shown from these sites we analyzed only 12 of those we got from Pub Med sector. The selection of these scientific papers was made after the use of children's age group as selection criteria.

Results:

Even the objective of the studies was the same, results showed different Exercise Program designed and applied at schools. Some of them tried to prevent it by implementing back care program inducing improvements on children's posture knowledge. These programs were oriented due to worthy information about how much important is to have a good posture for their later life and how to take care of it. [1, 11, 12] Furthermore many other authors tried to implement physical exercise program to reduce the muscular imbalance correcting the poor posture. [2; 3; 4; 10] Their programs were designed to strengthening and stretching weakened posture muscles. (Shown at Table no.1)

Table 1. – A summary of these models are well presented and detailed

	Methodology	Exercise designed	Results	Conclusion
1	*2*	*3*	*4*	*5*
Gardon, G. – Bourdeaudhuij, I. 2007.	Investigated the effects of combining: back care program &physical activity promotion program in elementary school children. Group.1 participate at (A); Group-2 at B program and control group (no specific program only physical education routine)	A (back care program) + B (physical activity promotion program)	Group.1 shows higher improvement on back care knowledge and behavior than Group. 2.	Two programs were effective but too much to be part of physical Education program. At postural aspects back care program was effective at children (9 years old).
Oliver, G. – Dougherty, Ch. 2010	182 healthy children 2 time/week, 8 week total. First 5 minutes of Physical education class.	Isometric positions, based on core strength and endurance.	Core stability was significantly improved within first 2 months of intervention program.	6–8 weeks of intervention are required that our organism responds and remodeling due to new or different external stimulations.

1	2	3	4	5
Byun, S-Han, D. 2014	To verify the effect of using basic Taekwondo movements as posture correctional program at elementary school. 8 weeks, 3 times per week including 7 basic exercises.	1: Hwangso Makki, 2: Meongye Chigi, 3: Olgul Makki, 4: Olgul Yop Makki, 5: Batangson Arae Makki, 6; Momtong An Makki; 7: Apkubi.	– 1& 2 had a significant effect on neck correction. – 3, 4, 5, & 6, on shoulder correction and 7 on the correction of pelvis inclination.	This study demonstrated that an exercise program of basic Taekwondo movements is an effective means of posture correction
Misra, A. – Alagesan, J. 2012	Establish effectiveness of exercise program in preventing postural deviation caused by back pack in children. 40 subjects, 10–14 years old.	6 weeks exercise program for 30 minutes each day for 6-days a week.	Strength exercises for core muscle combined with stretching exercises of opposite muscles.	This exercise program had highly effect on postural deviation reduction caused by backpack in children.
Wang, CH- Nobilini, R. 1999	Evaluate the effects of commonly used shoulder exercises on shoulder kinematics using streching and strength exercises. 20 subjects with forward shoulder posture. Tested before and after the 6-week exercise program.	Stretching exercises for the pectoral muscles. Strength exercises for the scapular retractors and elevators. Period of interevention: 6 weeks (3 times per week)	1.The strength of horizontal abduction and internal and external rotation increased after exercise (p <.01). 2.The anterior inclination of the thoracic spine decreased.	The exercise program improved muscle strength, produced a more erect upper trunk posture.
Somhegyi, A. – Varga, PP. 2005.	Were used the primary prevention program of the Hungarian Spine Society by using around 12 test exercises. Aim: biomechanically correct use of the spinal column.	This interevention was applied for 1 school-year (2001/2002). Subjects: 413 (Intervention group (n=200) aged 6 to 14. The posture correction exercises were done under teacher's direction in physical education classes.	the strength and flexibility of the postural muscles of the intervention group improved significantly.Test results of the control group were significantly (p<0.05) worse at the end of the school-year than their own results at beginning of the school-year and were more significantly (p<0.01) worse than the test results of intervention group.	The results of the study confirm that regular use of the preventive exercises in physical education improves the strength and flexibility of postural muscles.

1	2	3	4	5
Geldhof, E. – Clercq, D. 2007.	This study was to investigate what young children learned about good body mechanics in the obliga tory school curriculum compared to intensive back posture promotion. – Intervention last 2 school-years. 398 elementary schoolchildren aged 8–11 years.	– 13 h back education and the stimulation of postural dynamism in the class accompanied by environmental changes. Control group participated only at the obligatory curriculum. Evaluation consisted of a questionnaire.	This interevention program improved backposture knowledge. The obligatory curriculum provided children with fundamental postural knowledge, the back posture program added important aspects.	Intensive implementation of a structured multifactorial back education program in the elementary school curriculum is effective.

Conclusions:

Even why they used the same theoretical aspect to design their physical exercise intervention program, it was applied different kind of exercises combination. This difference on intervention programs doesn't resolve the situation of having a unified intervention program to correct posture. Further studies are needed to be done in the future because of this unified intervention program to determine the most effective posture correction program in children.

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The impact of strength training in VO2 performance (Stady Case)

Abstract: In volleyball the main achievement is winning the match so the means and methods used during the training sessions are very important to achieve this goal. The purpose of our study case is to show the impact of a method of strength training on the development performance of the maximum VO_2. Methodology: Åstrand Bike Test has been used to assess the VO2 max. The study included 20 female volleyball players at the average age 17.5, who were divided in two groups called Team and Control Group. The first group, the Team, apart from the volleyball training program, was simultaneously trained with exercises of strength, two times per week along a period of 12 weeks. Both groups were tested before the training by means of Pre-Test. After 12 weeks both groups, the Team and Control Group, underwent testing through the Post test. The processing of the results is carried out on the bases of the group mean. Results were processed statistically with Wilcoxon Signed — Rank test calculator and Pearson correlations calculator.

Results: Results showed a positive progress value from the Pre-test to Post-test, for both the Team and the Control Group: the result is significant at $p \leq 0.05$ to Max 02ptake 1/min and Max 02 Uptake Ml/kg/min. Results showed correlations between Max heart rate bpm and Max 02 Uptake 1/min, Max heart rate bpm and Max 02 Uptake Ml/kg/min on post test for the Team, that showed negative correlation, but the results are not significant at $p \leq 0.05$. Comparison of pre and post test results for the Control Group did not mark a significant value to $p \leq 0.05$ for Max 02ptake1/min and Max 02 uptake Ml/kg/min.Conclusions and discussions: Strength training has made the single, most positive contribution to this type of improvement. Strength training influences every sport program, no matter what the sport is. We must remember that strength builds the foundation for *all* other physical qualities. Our study shows that the correlation between strength training and performance improvement of VO2 max results of laboratory values compared to the good part of them were significant. Important for our study was the transfer of improving the performance of force training to the component of The VO2max, which is an important component of influencing the sports results. Strength training impact cannot say that is a key indicator but secondary indicator on VO2max performance. Referring to the results, performance VO2max more influenced by the beat of the heart which leads us to and exercise of force should be adequately regulated on the range of heart rate always working in areas where the impact to be higher.

Keywords: strength training, VO2 max, volleyball, performance.

Introduction:

Performance in sports is essential for any discipline. Likewise, in volleyball the main objective is good performance on the match day, and the achievement of this goal is greatly denedent on the means and methods used during the training sessions. The purpose of our study is to show the impact of strength training on the performance of VO_2 max. Cardiovascular capacity has often been thought to be the main limiting factor in endurance performance. Classical measures such as maximal oxygen uptake (VO2 max) and lactate threshold (LT) have been traditionally used in the laboratory to predict the performance potential [1,70–84] Consequently, the physical preparation for these sports is generally focused on the development of the physiological quality. However, elite endurance athletes with similar levels of VO2 max can have different abilities during a match and therefore maximum oxygen uptake can not fully explain the true ability at matches. Efficiency, and assessments that include a power component spe-cific muscle endurance, such as speed/power during maximal oxygen uptake (VO2max)), now thought to be superior performance indicators in a sporting elite [14, 286–91]. Economy is the amount of metabolic energy expended at a given velocity or power output [5, 316–9]. Economical movement is multifactorial and is determined by training history, anthropometrics, biomechanics and physiology [7, 1918–22] during Improvements in economy may be difficult to obtain in highly-trained endurance athletes and therefore any novel training modality that results in marginal improvements may be crucial for success. Endurance-specific muscle power is the ability of the neuromuscular system to rapidly produce force following a sustained period of high-intensity exercise (high glycolytic and/or oxidative energy demand) [15, 1527–33]. This ability may be the differentiating factor for elite endurance performance as successful athletes at world level can produce high elocities and power outputs to win a race following a sustained period of high-intensity exercise (figure 1).
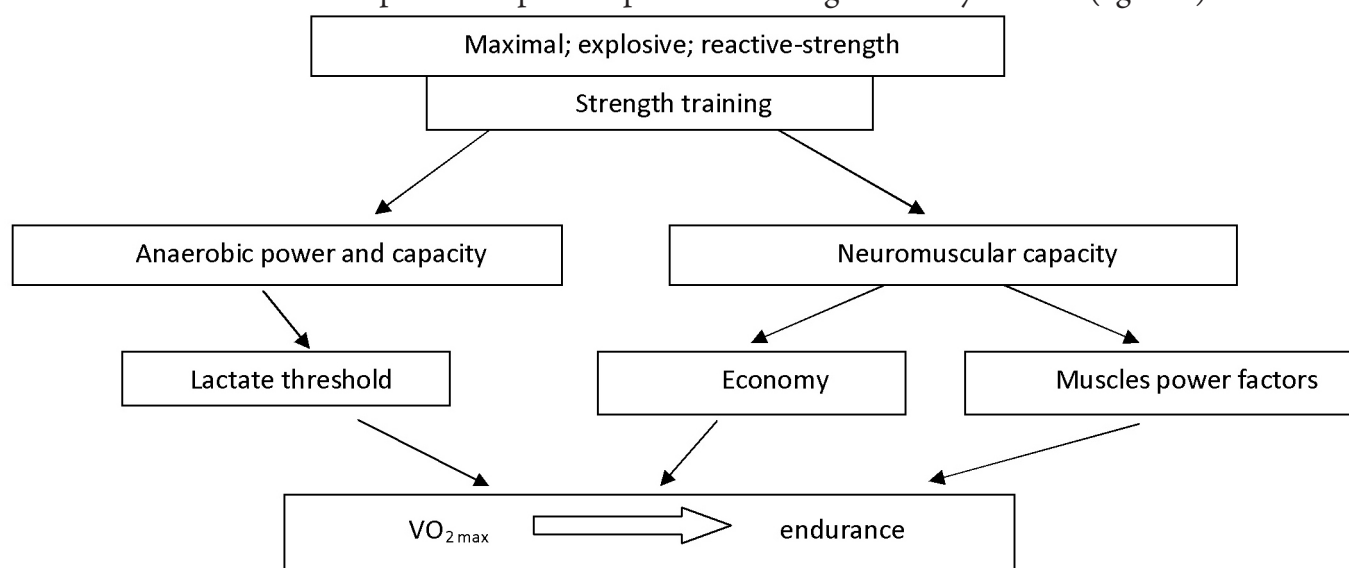

Figure. 1 Hypothetical model of the determinants for elite endurance performance and the potential benefits from strength training [3, 845–865]

Economy is represented by energy expenditure and is normally expressed as submaximal VO2 at a given velocity or power output. It is now established that economy is a critical factor for success in elite sport [18, 465–85]. The present research shows that there were significant improvements in economy from both maximal- and reactive-strength training interventions [10, 224–9] [2, 1818–25]. This supports Noakes' philosophy [13, 19–21] that performance with poor economy may lack musculo-tendinous stiffness and therefore strength training may improve the ability of the leg musculature to rapidly absorb and utilize the elastic energy produced during each ground contact.

Endurance-specific muscle power is the ability of the neuromuscular system to rapidly produce force following a sustained period of high-intensity exercise (high glycolytic and/or oxidative energy demand) [15, 1527–33]. This combined neuromuscular and anaerobic ability may be the differentiating factor for

elite endurance performance as successful athletes at world-level can produce high velocities and power outputs to win a race following a sustained period of high intensity exercise [15, 1527–33].

Recent research suggests that strength training is one of the most powerful interventions to improve sports results as an indicator of physical quality improvement [9, 870–877; 19, 1087–1092]. Muscular hypertrophy has been shown to interfere with some peripheral aerobic adaptations, [12, 164–166] it has been suggested that implementations should use strength training methods that emphasize on neural adaptations [4, 385–394].

Plyometric and dynamic weight training (PT and DWT) fulfill this requirement. Plyometric training involves an eccentric contraction immediately followed by a concentric contraction to allow the muscle to store and recoil elastic energy [8, 587–600].Jumps and rebounds are typically used to induce this muscle stretch shortening cycle. Dynamic weight training involves concentric contractions leading to the maximal power output. It generally consists in moving relatively light loads (between 30 and 50% of 1 repetition maximum) as fast as possible [20, 1279–1286].

Methodology: the two known tests for the assessment of VO2 max are Åstrand Bike Test and the Harvard Step Test. These tests are based on the linear relationship between heart rate (HR) and VO2. Indicator in increased heart beat is the intensity rate which translated the values of VO2 [11, 19–69].

The Åstrand Bike Test (also known as the Åstrand-Ryhming test) was first developed by P. O. Åstrand in 1956. It is a 6 minute test that uses a cycle ergo meter (a fixed exercise bike), can be used in both men and women of various ages and relies on the linear relationship between heart rate and VO2, as described above to predict maxVO2. The test enjoys a ± 15%

standard deviation from a directly measured maxVO2 [6, 61–582].We also included 20 female volleyball athletes with an average age 17.5, who were divided in the two groups called the Team and the Control Group. Both groups, the Team and Control Group were in the volleyball training stage. The Team beside the volleyball training program underwent exercises of strength, two times per week along a period of 12 weeks. Subjects completed questionnaires on their medical history and were considered healthy before starting the training. Both groups were tested before the start of the training, through the Pre Test. The groups underwent testing through the Post test after 12 weeks. Results are processed on the bases of group mean, for both Team, Control Group.

Results were processed statistically with Wilcoxon Signed — Rank test calculator and Pearson correlations calculator.

Results:

Results for the Team pre and post were taken and expressed in the average, standard deviations: Pre-Test Accept. Heart rate bpm 149.8, SD 10.2/Post-Test 150.8, SD 9.04. Pre-Test Max heart rate bpm 203.3, SD 0.8/Post-Test 203.3, SD 1.1. Pre-Test Vo2 correlation factor 1.04, SD 0.006/Post-Test 1.04, SD 0.006. Pre-Test Max 02 Uptake 1/min 2.65, SD 0.55/Post- Test Max 02 Uptake 1/min 2.86, SD 0.4. Pre-Test Max 02 Uptake Ml/kg/min 35.14, SD 5.6/Post-Test Max 02 Uptake Ml/kg/min37.67, SD 4.19: Results for the Team group showed positive values when pre and post tests results were compared, which are: the result is significant at $p \leq 0.05$ to Max 02ptake 1/min and Max 02 Uptake Ml/kg/min.

Results showed correlations between Max heart rate bpm and Max 02 Uptake 1/min, Max heart rate bpm and Max 02 Uptake Ml/kg/min on post test for the Team, that showed negative correlation, but the results are not significant at $p \leq 0.05$ (table1).

Table 1. – VO$_{2\,max}$ PRE and POST test for Team time work 6 min, test work 450 F + 750M

No	Groups	Age (year)	VO2 TEST	Accept. heart rate bpm	Max heart rate bpm	Vo2 correlation factor	Max 02 Uptake 1/min	Max 02 Uptake Ml/kg/min
10	Team SD	1996.5	Pre- Test	149.8 10.2	203.3 0.8	1.04 0.006	2.65 0.55	35.14 5.6
10	Team SD	1996.5	Post- Test	150.8 9.04	203.3 1.1	1.04 0.006	2.86 0.45	37.67 4.19

Result for the Control Group of Pre and Post Test are shown in average and standard deviations: Pre-Test Accept. Heart rate bpm 147.6, SD 7.98/Post-Test Accept. Heart rate bpm 147.6, SD 7.98. Pre-test Max heart rate bpm 203.2, SD 0.91/Post-test Max heart rate bpm 203.2, SD 0.91. Pre-test Vo2 correlation factor 1.047, SD 0.006/Post-test Vo2 correlation factor 1.047, SD 0.006. Pre-test Max 02 Uptake Ml/kg/min 35.055, SD 4.19/Post-test Max 02 Uptake 35.043, SD 4.19.

Comparison of pre and post test results for the Control Group did not indicate any significant values, to $p \leq 0.05$ for Max 02ptake1/min and Max 02 uptake Ml/kg/min.

Results showed correlations between Max heart rate bpm and Max 02 Uptake 1/min, Max heart rate bpm and Max 02 Uptake Ml/kg/min on post test for the Control Group, that showed negative correlation, but the results are not significant at $p \leq 0.05$ (table 2).

Table 2. – VO$_{2\ max}$ PRE and POST test for Control Group with work time 6 min, test work 450 F+ 750M

No	Groups	Age (year)	VO2 TEST	Accept.heart rate bpm	Max heart rate bpm	Vo2 correlation factor	Max 02 Uptake 1/min	Max 02 Uptake Ml/kg/min
10	Control Group SD	1996.4	Pre-Test	147.6 7.98	203.2 0.91	1.047 0.006	2.542 0.30	35.055 4.19
10	Control Group SD	1996.4	Post-Test	147.6 7.98	203.2 0.91	1.047 0.006	2.538 0.31	35.043 4.19

Results compared to post test between the Team and the Control Group for Max 02 Uptake 1/min, expressed minor but significant differences at $p \leq 0.05$. (table3, 4)

Table 3. – Summary of VO$_{2\ max\ PRE}$ – TEST Team and Control Group with work time 6 min, test work 450 F + 750M

No	Groups	Age (year)	VO2 TEST	Accept.heart rate bpm	Max heart rate bpm	Vo2 correlation factor	Max 02 Uptake 1/min	Max 02 Uptake Ml/kg/min
10	Control Group SD	1996.4	Pre-Test	147.6 7.98	203.2 0.91	1.047 0.006	2.542 0.30	35.055 4.19
10	Team SD	1996.5	Pre-Test	149.8 10.2	203.3 0.8	1.04 0.006	2.65 0.55	35.14 5.6

Table 4. – Summary of VO$_{2\ max}$ POST-TEST Team and Control Group with work time 6 min, test work 450 F + 750M

No	Groups	Age (year)	VO2 TEST	Accept.heart rate bpm	Max heart rate bpm	Vo2 correlation factor	Max 02 Uptake 1/min	Max 02 Uptake Ml/kg/min
10	Control Group SD	1996.4	Post-Test	147.6 7.98	203.2 0.91	1.047 0.006	2.538 0.31	35.043 4.19
10	Team SD	1996.5	Post-Test	150.8 9.04	203.3 1.1	1.04 0.006	2.86 0.45	37.67 4.19

Results of post test compared between the Team and the Control Group for Max 02 Uptake Ml/kg/min showed no significant values at *p≤0.05.*

Conclusions and discussions:

Strength training has made the single, most positive contribution to this type of improvement. Strength training influences every sport program,

no matter what the sport is. We must remember that strength builds the foundation for *ALL* other physical qualities. According to the comparison of results of laboratory values for the pre and post tests it is pointed out, for the majority of them, a significant improvement on performance as well as a strong correlation between strength training and VO2 max. These results showed that the improvement value was minor compared with the **Control Group** and **Team**. Results were not significant at p<0.05. Important for our study was the transfer of strength performance onto VO2max indicators, which is an essential component that influences sports results. Comparison of results on pre and post test of Max 02 Uptake1/min between Team and Control Group was significant at p≤0.05. Value of Max 02 Uptake Ml/kg/min would be better assessed if body weight could be included. Studies have shown correlations between body weight and $VO_{2\,max}$. Results showed correlation between maximal heart rate and Max 02 Uptake1/min, Max 02 Uptake Ml/kg/min. Based on these results we can say that introduction of the strength training programs at volleyball season matches we will not lower the performance of VO2max. Strength training impact cannot imply that it is a key indicator but more a secondary one on VO2max performance. Referring to the results, VO2max performance is more influenced by the heart rate which leads us to the fact that strength exercises should be adequately regulated on the range of heart rate which on the other hand will increase the VO2max performance with a high intensity workload and a certain duration which increase heart rate and affect transfer capacity of VO2max.

Further implications:

Our study on the Impact of strength training in VO2 performance will continue even further by focusing on the rating of Force training in the range of heart rate or to the drill of sustainability of strength to see its effect on VO2max. In this study we focused only on Uptake ratios Max 02 l/min and Max Uptake 02 ml/kg/min, maximum heart rate. In successive studies we should introduce more indications to shed light on the development of strength training reports on VO2max indicators.

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Relationship between diet and body fitness, with adjustment for resting energy expenditure and physical activity

Abstract:

Introduction: Research efforts for effective treatment strategies still focus on diet and exercise programs, the individual components of which have been investigated in intervention trials in order to determine the most effective recommendations for sustained changes in bodyweight. Obesity, particularly central adiposity, has been increasingly cited as a major health issue in recent decades. Indeed, some of the leading causes of preventable death and disability, including heart disease, stroke, type 2 diabetes, degenerative joint disease, low back pain, and specific types of cancer are obesity-related [1, 104–108]. Annual obesity-related medical costs in the United States were estimated to be as high as $147 billion in 2009 [3, 822–831].

Experimental design: A total of 70 recreationally active males and females between the ages of 15 and 18 years were recruited to participate in the study. In this study, recreationally active was defined as participating in less than or equal to two exercise sessions per week over the previous 30days. Subjects were required to have a body mass index (BMI) greater than $27kg/m^2$ and body fat greater than 20% (for males) or greater than 25% (for females). This study utilized a randomized, placebo-controlled, parallel-group, double-blind design. Subjects were matched according to sex and BMI prior to being randomized into different groups based on the physical activity patterns.

Conclusions: Basal metabolism is lower in people that have a lower physical activity based on the fact that they have a lower muscle mass. Basal metabolism is higher in the moderate physical activ-

ity. The total energy expenditure is higher in relation with the time in high and moderate physical activity; this shows that the muscles are better adapted in high intensity training in using the energy. The moderated physical activity intensity doesn't make the subjects to have a higher energy intake necessities so it can be considered the best way for lowering body fat without he necessity to have a higher food intake. There is a better relationship between the intensity of the physical activity and food intake, so this shows that there is a better understanding of the body from those that make physical activity than those that don't.

Keywords: Basal metabolism, Diet, Physical activity.

Introduction

Research efforts for effective treatment strategies still focus on diet and exercise programs, the individual components of which have been investigated in intervention trials in order to determine the most effective recommendations for sustained changes in bodyweight. Obesity, particularly central adiposity, has been increasingly cited as a major health issue in recent decades. Indeed, some of the leading causes of preventable death and disability, including heart disease, stroke, type 2 diabetes, degenerative joint disease, low back pain, and specific types of cancer are obesity-related [1, 104–108]. In the United States, more than one-third of adults (35.7%) are obese [2, 1–2]. Annual obesity-related medical costs in the United States were estimated to be as high as $147 billion in 2009 [3, 822–831]. Excess body weight is also a major risk factor for the development of Metabolic Syndrome. Metabolic Syndrome is a constellation of medical disorders including hypertension, central adiposity, hyperglycemia and dyslipidemia [4, 1–2; 5, 148–153] that increase the risk of premature cardiovascular disease. Dysregulation of certain adipocytokines can contribute to insulin resistance, amplified systemic inflammation and lead to the development of Metabolic Syndrome and hypertension [6, 1787 –1801]. For example, plasma levels of adiponectin have been reported to be significantly reduced in obese humans [7, 79–83] and in patients with type-2 diabetes mellitus, hypertension and metabolic syndrome [8,1595–1619; 9, 85–89; 10, 231–234; 11, 167–175].

Objectives

- Evaluation of BMI based on the training effort.
- Evaluation of the changes on the metabolism due to physical activity.
- The evaluation in energy expenditure due to specific training values.

Methods

Subjects

A total of 70 recreationally active males and females between the ages of 15 and 18 years were recruited to participate in the study. In this study, recreationally active was defined more participating in less than or equal to two exercise sessions (aerobic or anaerobic activity) per week over the previous 30 days. Subjects were required to have a body mass index (BMI) greater than $27 \, kg/m^2$ and body fat greater than 20% (for males) or greater than 25% (for females). Subjects were excluded if they had used weight-loss supplements within the 30 days prior to the start of the study, had gained or lost more than 4.5 kg over the previous 30 days, were currently taking medications that alter insulin sensitivity, or were using lipid lowering or antihypertensive drugs. Subjects were also excluded if they had metabolic disorders, heart disease, and hypertension, a known allergy to any ingredients in the supplement or placebo or had smoked cigarettes in the last six months. Prior to being enrolled in the study, all subjects underwent a physical examination by a licensed physician, 12-lead electrocardiogram, health history screen and provided written informed consent.

Experimental design

This study utilized a randomized, placebo-controlled, parallel-group, double-blind design. Subjects were matched according to sex and BMI prior to being randomized into different groups based on the physical activity patterns.

Discussion

Weight gain is known to occur with aging in healthy subjects. Weight gain is the result of energy intake exceeding energy expenditure. Food intake has never been shown to increase with age; on the contrary, it seems to decrease in older people [12, 894–931]. Whether energy expenditure is normal

or lower in older subjects has not yet been clearly established. Physical activity most certainly decreases with increasing age and represents possibly one of the major factors in the process of weight gain with age [13, 1–8]. The thermo effect of glucose was also reported to decrease in older subjects [14, 144–148] and this may be true for other macronutrients as well. However, there are some contradictory reports concerning the effect of age on the basal metabolic rate. The age-related decrease in basal metabolic rate was described in normal men aged > 50 y in cross-sectional studies involving a large number of subjects [15,468–484; 16, 303–311; 17,447–51; 18, 31–40]. However in 1973, Keys et al [19, 579–87], in longitudinal studies over 20 y, found that these cross-sectional studies had greatly overestimated the true age effect. They concluded that the reduction in basal metabolism attributable to aging per se is no more than 1–2% per decade over the range of 20–75 y. They also showed for the first time that most of the age effect on energy metabolism is accounted for by a change in body composition. Keys' results were later confirmed by Webb's observations [20, 1816–26].

Basal Metabolism (in C cal)

Total Metabolism (in C cal)

BMI

The Energy intake during lunch
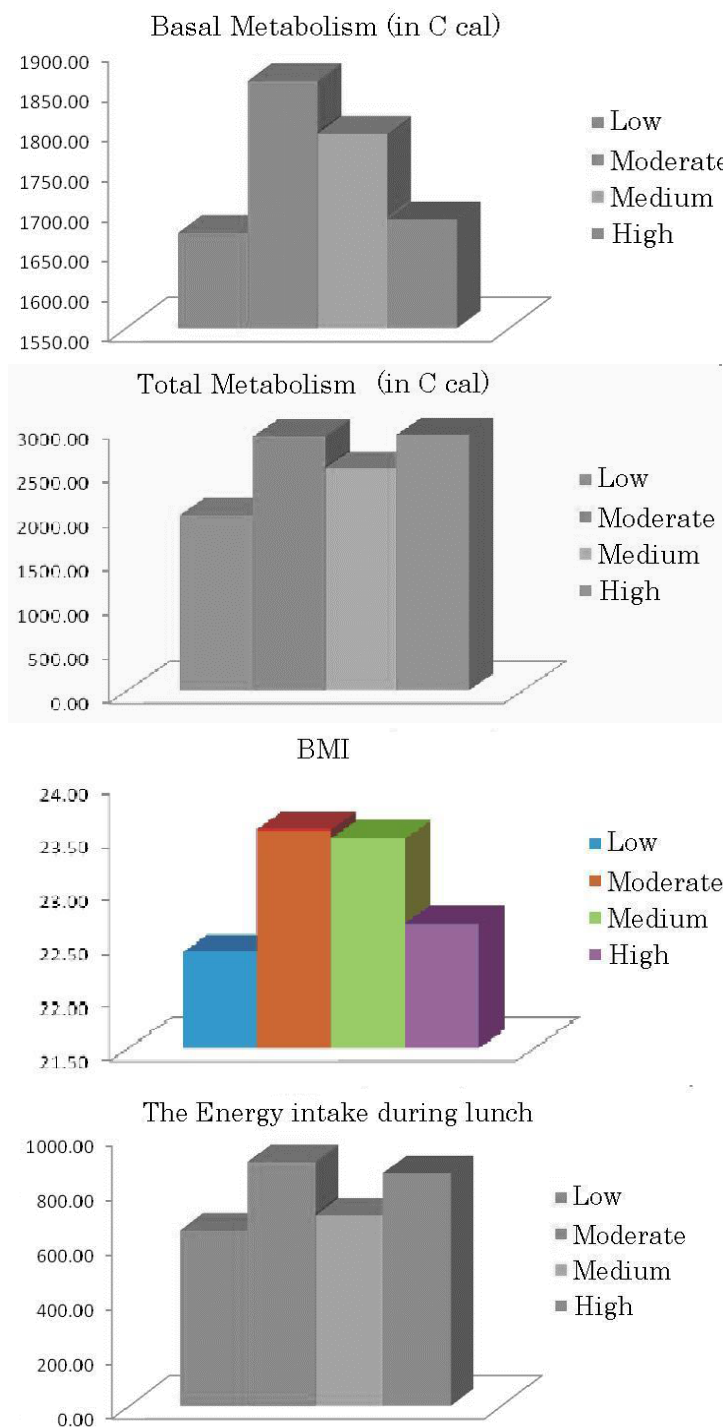
Effect of physical fitness on energy expenditure

Whether physical training and therefore physical fitness increases energy expenditure beyond that generated by the exercise period itself remains an open question [21, 146]. One of the major reasons for this confusion relates to the effect of the last bout of exercise vs the prolonged effect of training. In some studies, elevated oxygen consumption has been reported to last up to 48 h after exercise [22, 532–5; 23, 452–6; 24, 689–7; 25, 314–21; 26, 69–82]. In his review, however, Steinhaus [27, 103–47] concluded that no subsequent change in basal metabolic rate can be demonstrated in response to exercise and this was confirmed by Freedman et al [28, 545–9]. The differences in intensity and duration of the bout of exercise as well as the physical fitness of the subject in these studies can partly explain the discrepancy in the results and conclusions. Whether the bevel of physical training has an effect on the thermo effect of food is also not clearly established [29, 334–7; 30, 743–9]. Very little is known as to whether fitter individuals have higher metabolic rates in the resting state. To avoid any confounding effect of the last bout of exercise, the resting metabolic rate was measured after the subjects had lived on the metabolic ward without performing any kind of vigorous exercise for at least 7 days. In these subjects the maximal 0_2 uptake varied from 34 to 55 ml 0_2 — kg FFM' — min. There was no significant relationship between resting metabolic rate adjusted for fat-free body mass, fat mass, age, and sex and any muscle characteristics. People with large fat-free body mass have a lower capillary density (r = −0.49, p < 0.0001) and artificially reduced metabolic rate. This represents another example of erroneous normalization of energy expenditure data, which can lead to the wrong conclusions.

Conclusions

Basal metabolism is lower in people that have a lower physical activity based on the fact that they have a lower muscle mass. Basal metabolism is higher in the moderate physical activity. The total energy expenditure is higher in relation with the time in high and moderate physical activity; this shows that the muscles are better adapted in high intensity training in using the energy.

The moderated physical activity intensity doesn't make the subjects to have a higher energy intake necessities so it can be considered the best way for lowering body fat without he necessity to have a higher food intake.

There is a better relationship between the intensity of the physical activity and food intake, so this shows that there is a better understanding of the body from those that make physical activity than those that don't.

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Section 8. School Education

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Features innovative changes in educational process in secondary schools of Ukraine

Abstract: In the article the analysis of innovations in educational process in secondary schools in Ukraine, by their characteristics, defined forms of innovation by which made innovative changes and periods of application of innovations in education in the national school practice.

Keywords: innovation, innovative changes, educational process.

Change priorities and values taking place in recent years in our society requires innovative changes in education and training that is a logical and natural in its development.

At the turn of the new millennium with the collapse of the USSR and the emergence of the post-Soviet independent states and Ukraine as an independent state in particular, Ukrainian society was the task of creating a new, separate, independent states, which dominate modern universal, European and national values. The young state was declared the highest value man, humanistic and democratic ideals that led to a rethinking of national education on philosophical and methodological level, the search for practical ways to radical changes in education and upbringing. "The democratization of education, giving it a national public-directional, — stressed I. Bech — require psycho-pedagogy finding new ways to improve quality education of rising person" [1].

Definite problem devoted to the works of famous scientists, researchers, educators, V. Andrushenko, G. Balla, J. Beha, O. Vishnevsky, M. Evtukh, I. Zyazyuna, I. Kremena, M. Stelmahovycha, O. Sukhomlinskoy and others. Defining a new philosophy of national education and training, exploring innovative processes in pedagogy is not sufficiently studied the problem of innovation in the educational process of secondary school. Therefore the aim of the article is to analyze the innovative changes in the educational process of secondary school Ukraine and identify their characteristics.

Analysis of scientific literature and recent studies suggest that the organization of modern education in Ukraine is carried out by means of innovations that appeared in the implementation in practice of progressive thought about modern education, manifested his philosophical and methodological basis. For example, O. Vishnevsky, Ukrainian scholar and teacher, says that during the development of the Ukrainian state and formation of civil society in it a priority in education is a national revival. By this, the researcher understands not only the desire to restore national identity of the child, but that «all aspects of education and training are national in nature, that correspond to the strategic goals and Ukrainian nation and state, our educational traditions and our mentality; This should be a system that meets the needs of the nation, the state and the individual» [2]. Because O. Vishnevsky sees strategy of modern Ukrainian education in the return to traditional Christian principles of education and training that involves belief in God, the Absolute Love and Goodness. It recognizes the weakness of human sin and seeks help her get better. The main subject of attention in traditional Christian education is the

development of human conscience that keeps her from evil creation, points to the committed offense against morality, warns against sin. An example of breeding in this strategy is the person who serves God and country, and therefore, in their daily activities committed to the good of the land and determine their actions accordingly.

The second dominant trend Ukrainian education, training and development, O. Vishnevsky, democratization is individual and adjusted to life in freedom [2]. Thus determining national democratic nature of Ukrainian education and Ukrainian education researcher outlines priorities: revival of spirituality, moral principles and patriotism, civil rights consciousness — its creative and volitional qualities, initiative and ability to provide a competitive environment for success, take care of your health and the environment.

So, despite the fact that the idea of modern Ukrainian education to O. Vishnevsky now had wide acceptance and is being implemented only in some schools, however, she made a contribution to the development of national pedagogy. Directive alternative approach to education that prevailed in Soviet times, emphasizes I. Bech has come personally oriented education philosophy that embodies democratic, humanistic position on the formation and development of the younger person, for whom freedom and social responsibility are the dominant life benchmarks "providing child the right to freedom of choice of value positions, the value of the human spirit and the value of life in general, the possibility of an effective exercise in the presence of her installation at overcoming disharmony in the experience, behavior, communication, activities" [1, p. 5]. For this strategy of building educational process should be defined scientific understanding of the internal laws of personality development in ontogenesis and realization of the essential nature of the child [1, p. 31].

Characteristic of personality oriented educational process is pedagogical action calling for personal interaction, emotionally rich and full social life meaningful joint creative teacher and student that meets their basic needs. This cooperation teacher and student in a single emotional and sensory range prevents invasion teacher in the children's world, giving the student to function better as a person. Personality oriented education embodies the idea of creating educational situations, providing moral and spiritual development of socially significant and arbitrary behavior of the individual. Such education is an effective means of formation of free, responsible personality characteristic sense of human dignity, emotional sincerity, honesty, fairness, respect for others and the desire to be helpful. The education of the moral and spiritual qualities, according to J. Beha is the training of the young generation to strengthen the Ukrainian state [1]. So, personally oriented education based on humanistic ideas, take into account the personal needs of the teacher and the student meets the needs of modern society and is most common among ideas in general practice education establishments.

The second form of modern education in Ukraine is carried out by means of innovations that appeared in specific technology education future challenges that are innovative in educational systems, prog In the early formation of our country in search of a new philosophy of pedagogy scientists actively studied national educational heritage B. Grinchenko, G. Vashchenko, I. Ogienko, L. Ukrainka, S. Rusova, V. Zenkovsky, I. Franko and others developed the concept national education, carried out searches Ukrainian educational ideal ways of creating a national identity. It is that time is the beginning of active recovery in Ukraine Cossack educational traditions. Thus, the creative team of Ukraine consisting of scientists Y. Rudenko, M. Stelmahovycha and other developed concept of "Ukrainian Cossack pedagogy" [3], which was determined by the leading idea of the Cossack movement — the freedom and independence of Ukraine, the inviolability of human rights and people, individual sovereignty, democracy. The authors come from the fact that the Cossack pedagogy — a popular educational wisdom that its main goal put the formation of the family, school and social life Cossack knight, brave citizen with a distinct Ukrainian national consciousness and identity.

At present ideas Cossack pedagogy are realized through the creation of children's and youth organizations deploy their activities on the multifaceted Cossack traditions, and are used in the educational

process with the elements as Cossack competition Cossack jousting tournaments, theatricality scenes Cossack life, intellectual games theme of Ukrainian Cossacks, Cossack competitions dishes.

During this work, the authors of the concept, adolescents and young Ukrainian master concepts, ethnology, human nature, Cossack science and art, nature, psychology Cossack, they formed a national consciousness and identity, ardent patriotism, outlook citizen of independent Ukraine [3]. So creative introduction to modern conditions Cossack traditions and customs, promotes physical health of the students to form the moral standards of spirituality, devotion to national interests and human values.

At the beginning of this century based on research methodological foundations of modern education as defined in the basic guideline education students 1–11 grade schools approved by the Ministry of Education of Ukraine [4], the preferred approach to education is a national design-technological approach. The authors of this document employees Institute of Problems of Education in Ukraine, determined that the implementation of modern technologies of educational work in practice possible based on the design of individual pupil. Application design and technological approach to the process of education in school allows: a) practically implement individual approach; b) plan and predict results educational influences; c) choose the most effective for the student or students group forms and methods of educational work; d) objectively evaluate the efficiency and effectiveness of educational work. In this way, the authors reference education, "the transition from" pedagogy of measures "to pedagogy focused and deliberate the personality traits and qualities of a young man" [4].

Production engineering approach, according to the researchers, allows to realize variability in the content of education, strict regulation to avoid filling various contents of the students during their creative projects, gaining features of a real productive work. Design technology provides a systematic and consistent modeling problem solving, requiring participants to the educational process of search efforts in research and development of the best ways to create projects, protection and analysis of results. The value of the project technology is that it directs

the student to create a certain product, not just participate in any school activities.

Actions that are directly related to the implementation of the educational project need a certain amount of expertise and skills, possession of a set of behaviors that ensure the success of individual self-realization. These are: mastering certain social roles, management facts in life, good use of time, gaining flexibility in relationships and the experience of cooperation, positive attitude to innovation, responsibility for their performance, teamwork, defend their own point of view. The result of an educational project to be vital competence of students that formed the ability to act in specific situations according to their own values, attitudes and beliefs [4].

Note that the design and technological approach as innovation in the educational process, is now being promoted and distributed in practice and contributes to solving the problems of modern education.

At the turn of the XXI century, special attention as researchers, educators and practitioners devote interactive forms, methods and technology education. Scientists explore their educational potential, especially in the use of educational process and practicing teachers actively acquire, apply, extend the known interactive forms and methods of education and create new ones. Today the most famous interactive forms and methods used in the practice of the educational process is training, brainstorming, role-playing and simulation games, projects, case

It should be noted that interactive forms and methods in the educational process are not new, used them in practice before. In the last century as a means to an end at that time, were distributed in educational practice collective creative affairs, debates, festivals, gaming technology etc.. studies, group discussions, quests, flash mob and others. Therefore, we believe it is important not so much the elections and the use of interactive methods and forms of technology as its application, that should not ask questions that interactive method used in the educational process, as well as how it is used. The key is that the basis is interactive cooperation of its members and that the style of this interaction depends on the outcome of education.

Thus, innovative culture change process in secondary schools in Ukraine carried out by means

of innovations that appeared in the following forms: innovation as philosophical and methodological basis of modern education, acting embodiment of progressive thought about modern education; innovation, Technology Policy as specific problems of education, manifested in innovative educational systems, programs, methods and practical means.

Summarizing the above, we can identify three periods of application of innovations in education in the national school practice other than the dominant type of innovation:

First period — 1991–2000 years — Radical and global innovation — based on a fundamentally new ideas, strategies, approaches to education.

Second period — 2001–2013 years. — Combinatorial and system innovations — a new combination of known elements, combining traditional and innovative, creating new educational systems, programs, education, mastery of interactive forms and methods of education.

Third period — 2014 — present — upgraded system and partial innovation — improving and adding appropriate forms and methods of education, improvement of existing educational systems, models, technology education.

In view of the above, it can be argued that innovative changes in the educational process in secondary schools in Ukraine have certain features, characterized in variability, openness, diversity and aimed at the revival of national education based on universal human and national values.

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Section 9. Pedagogical Psychology

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Critical thinking of students on the basis of technology to improve the cognitive activity

Abstract:

Aim: Critical thinking technology to increase students' cognitive activity on the basis of open **Method:** theoretical analysis of the literature on the topic.

Conclusion: in line with the development of advanced technologies to improve the quality of education,, teaching critical thinking by changing the basis of the technology is familiar to the students on the basis of the results obtained, as well as unusual circumstances, problems, logical analysis of the personal and psychological point of view, the new to ask questions, to create a variety of evidence, an independent, you can develop a carefully thought-out decision-making capacity. The article describes the advantages and effectiveness of this technology.

Keywords: intellectual capacity, intellectual activity, critical thinking, technology, step-by-step process cycle, interest and understanding of the value of the reflection.

"Article 8 of the Law" On education, "the main task of the education system — the introduction of new technologies, training, education, information, and communication networks," he said, as well as the development of the Kazakhstani education system is one of the main objectives of the international success of the educational space In order to implement the integration of the issues at the current stage of each teacher's task is to improve the quality of education and training in line with the change of the methodological development of advanced technologies.

At the moment, the trend in the field of education, the formation of the intellectual potential of the "Intelligent Nation 2020" Guided by the national project, is aimed at training future professional, trained, educated person.

"Intelligent Nation 2020" The main idea of the project in Kazakhstan into a competitive human capital in the state, bringing a new formation in Kazakhstan.

The world's economic and social success of the nation's intellectual potential of the country in the space is a decisive competitive factor. Currently, the company is smart, competent, creative thinking, an own intellectual members of society need to be able to control the behavior of the person.

Intellectual potential, which is first and foremost an intellectual resource base of the company is the system of continuous education, and all kinds

of intellectual subjects of science, education, integrative concept combines innovation.

Developed intellectual, psychological and philosophical basis of the methodological basis for the development of the individual actions, is the theory of knowledge management rules.

Knowledge of psychological theory of cognitive processes, the mechanism of the development of the intellect, as a subject of the student's cognitive activity, intellectual and creative abilities opens.

No matter what time, an individual's thoughts and opinions on the formation of thinkers and scientists, the general public really interested in. Perfection in the formation of personality, intelligence and responsible for the high society deserve to contribute to the education of young people is one of the science of psychology.

Personal development of the potential of the younger generation of psychological science, the opening of its properties, to encourage creative activity and cognitive behavior compatible with the accuracy of the focused on the formation of a fully developed person.

Consequently, the realization of the full potential of the human personality is reflected on the basis of intelligence.

If so, According to scientific research, provided the basis for the modern understanding of the science of psychology intelligence three:

1. biological reasons: "the ability to adapt to the new state of consciousness";

2. pedagogical reasons: "the ability to read, to learn";

3. The formulation of a framework for A. Binenin intelligence "means the ability to adapt to the goal". Depend on the judgment of the intellect is a different set of skills. Defines a set of cognitive processes and intellect.

"Intelligence is the development of better living conditions, rational thinking, and the ability to act wisely scale" (Wexler), considered as the ability to adapt to the environment of the human intellect.

Many researchers have come to the conclusion that the overall level of intellectual activity coefficients for the individual. Spirmen "the power of his mind remain unchanged," he said.

3. Freud "mental strength" introduced the term, the result of the concept of G-factor (General) is a mental activity in the general fund has emerged as

A. F. Lazwrskiy activity on three main levels:

1. The lower level. Not tailored to the individual, the person presses a mentally weak.

2. The average level. Well adapted to the environment, take place in accordance with the internal psychological reality.

3. Level: characterized by the creation of an attempt to re-create the environment.

Also, for the decision of the diagnosis and evaluation of the intelligence factor intellectual tests, D. Ravennin "Progressive Matrices" test, Ketteldin intelligence test.

Terstown to study different aspects of the general intelligence, called the possibility of the first in their mind. Noted that seven of the features:

1) the ability to calculate, that is, the ability to create a variety of operational and arithmetic operations on numbers;

2) verbal (verbal) skills, that's easy to explain using the appropriate words at the right time;

3) verbal, that is, the ability to understand spoken and written language;

4) orientation in space, or the ability to imagine different things and forms keğistikte;

5) memory;

6) the ability of reasoning;

7) images and the speed of adoption of the similarities or differences between the substances.

The above-mentioned development of the intellectual abilities of the studies noted the importance of the role of science in psychology. The evidence is in the opinion of the Albert Einstein said Jean Piajege: "I much harder than your physical and psychological, as well as the relations civilization of the XXI century must be the century of psychology".

"Psychology" teaching-learning process of optimizing the use of the optimal method will provide the basis to achieve the desired level of quality of education. "Psychology" through training courses and other innovative approaches to the subject of interaction and integration. To promote the use of specialists in the field of education and research in practice is that there are a lot of technologies, one of them critical thinking technology.

Critical word composed of two Greek words: "kritike" analysis, discussion, dialogue and art "kriterion" — a tool for understanding.

Technology for the development of critical thinking of the teachers of cooperation with scientists from all over the world. How can he think? as a method of teaching that the answer to the question in the 90s of the 20th century, American scientists K. Meredit Ç.Templ, presented by Dj.Stil. In relation to the information provided by the authors of the project in many ways, group, organization of the working class in a variety of question types, active learning, methods of graphic material that "key words".

The purpose of this educational technology — not only to read, but also to live a normal life (the real decision-making skills, ability to work with information and analysis of the various aspects of the event, etc.) necessary to develop students' thinking skills.

Critical thinking is the usual results, as well as unusual circumstances, problems, logical and personal information and the ability to analyze the psychological point of view. This new questions, to create a variety of evidence, independent and well thought-out decision-making ability.

The National Council for the development of critical thinking offers the following definition: "to understand the value of critical thinking, analysis, observation, experience, reflection, reasoning, caused by the formation of an opinion or evaluation or analysis of the information received from the organized active in the output of the process".

"Critical", the notion of "critical" is not synonymous with the concept of evaluation component. "We think the critical platform, we appreciate the outcome of the processes of thinking — as far as our decisions or how much we were able to successfully perform the tasks correctly. Critical thinking as well as our understanding of the process that led to the conclusion or decision-making process includes an assessment of the factors that we take into account the thinking process" — explains D. Xalpern

Critical thinking:

— A positive experience for all of the people.

— Self-responsibility of thinking.

— Precise, consistent thinking (solid evidence carefully evaluated to make decisions).

Jean-sided thinking (the phenomenon is to consider the different sides of the business).

— Individual thinking (the creation of personal information culture).

Social thinking (Man, is carried out in the group; the basic approach of the current debate).

This technology will not only improve the efficiency of student competence, as well as:

1. Directed to the improvement of individual development.

2. The establishment of good relations between students and teachers.

3. Students' self-created conditions of comprehensive education.

4. Learning to think critically, to high-quality education.

5. Students involved will learn how to exchange their views competently.

6. In one respect for each other.

7. Able to find a summary of the most basic problem.

8. The increase in the student's creative activity.

Technological advantages:

— Rises to its responsibility to the quality of education;

— Any type of text, and develop the skills to work with a large volume of information; learn the skill of linking information together;

— The system develops logical thinking;

Analytical and creative skills, and develop skills to work effectively with other people; their game in relation to the others formed a clear ability to deliver in a reliable and well-mannered way.

Critical thinking algorithm:

1. What is the goal?

2. What do you know?

3. What should I do?

4. Have we achieved the goal?

The technology is based on a three-stage structure of the lesson:

I. – interest ("Bridge", a shift in thinking)

II. – understanding of the value of the (value off)

III. – reflection (assembled)

Three step-by-step process cycle: the understanding of the value of the interest period of reflection for the full implementation of the three approaches is

an important condition in the context of the lesson.

The first period is for the "awakening of interest". This is the task of the teacher and students only interested in trying to activate, stimulate further work, as well as activation and stimulation for further work to remember there was an important factor in education or training in the creation of the association. It is the student's activities during the period: students are trained and familiar with him on the issue and be reminded to read the information, systematize it and are willing to answer any questions.

During this period, the methods and techniques that can be applied to are:

— «Familiarity with the information,» the forecast for the creation of a list of key words and talk;

— Organizing the material (graphics): clusters of tables;

— Right and wrong;

— Intricate logic circuits, etc.

Conclusion: The information obtained from the first step to be heard, to write, to be discussed in teams of two.

The meaning of the second stage. During this period, the information is direct. Critical thinking and methods of technology education to the activity of the recipient, or a reasonable opportunity to listen to the reading.

The actions of the teacher of this period: a direct interest in the topic when working with new information, «old» knowledge «new» move gradually.

Education's action: Students use active listening methods while the teacher reads the text, will mark the edge of the road or recording to a new level of information.

During this period, the methods and techniques that can be applied to:

— "V", "+", "–", "?" Through the use of signs marking;

— Both in the form of a diary in-flight magazine of different records;

Search for answers to the questions, and the first part of the lesson, etc.

Conclusion: there is a direct link with the new information (text, film, lectures), working individually or in pairs.

The third period of reflection. During this period,

the information is analyzed and explained in a new, creative approach to the re-created.

Teacher activity: students write sentences re-importation, additions, alterations, read information on the basis of creativity, research or practical tasks.

Education's action: students understand the value of using the knowledge obtained during the period of "new" information to compare with the "old"

During this period, the methods and techniques that can be applied to:

— Cluster, fill in the information in the table to establish cause-and-effect relationships between the blocks;

— Passwords, return to the correct and incorrect judgments;

— In response to questions;

— The organization of round tables and interpreters;

Different types of discussions;

— Creative writing (essay cinquain).

Conclusion: The knowledge of creative information processing, analysis, interpretation, and etc.

This technology is the most frequently used methods of description:

One of the leading approaches is to cluster. Graphical data systematization of the cluster approach. Cluster system than most of the information in the record.

This approach organizes the main information source familiar with the question, or the sense of the total during the awakening of interest in the form of a name can be used. We will place around the theme of the meaning of the name of the aggregate.

Material technology in the development of critical thinking in the form of visual attention is given to the organization. This is used as a form of creative reflection. In other words, it is the first attempt for students to systematize the information and state their opinions.

One of the main methods used in the implementation of this technology cinquain. The French word «cing» — five relief. This is a poem of five lines. As a way to collect information. Efficiency in the form of a statement of the value in the idea of painting a few words, Develop the ability to express ideas in compact form. Cinquain — individual task; pair work; may be rare for a collective creative work. Cinquain

summarizes the results of the work, or information that allows you to express your opinion on a certain issue brief write a short form. This encourages students to carefully select tools and vocabulary to bring across the main idea. Records should be done in 5 steps:

1. The first line is the topic of a word or phrase (usually a noun);

2. The second -topic definition of two words (adjectives);

3. The third line is the action of the subject, the three words (verbs);

4. The fourth theme is a four-word phrase.

5. The last line is synonymous with one word on the subject.

And, finally, when the company increased the burden of responsibility for teachers, and the results of its activity is related to the implementation of new technologies, but also the problems and make effective use of knowledge should be taken into account.

Development of new technologies — the teacher, intellectual, moral, spiritual and other civil -up influence on the formation of self-help the organization develop an effective educational model of psychological science.

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Motivation research: the interdisciplinary problem

Abstract: In the field of natural sciences and psychology, a number of special scientific disciplines and directions have been generated. They include psychophysiology, physiology of the higher

nervous activity, working psychology, the engineering psychology, the object of the research, and the working person. The question on development of requirements has the major value for definition of psychological conditions of the development of a person, and its motivational sphere. The aspiration for providing motivation is in two aspects, and is characterized by ordinary speech. The special question consists of what mechanism of development of requirement motivation is. *Motives — are* promptings in carrying out an activity, connected with the satisfaction requirements of the subject. It sets the external or internal circumstances causing activity of the subject and defining its orientation.

Keywords: activity, motives, psychology, work, extrinsic negative motivation.

Introduction

In the field of natural sciences and psychology, a number of special scientific disciplines and directions have been generated. They include psychophysiology, physiology of the higher nervous activity, working psychology, the engineering psychology, the object of research, and the working person.

The primary goal of these disciplines is to study a wide range of psychophysiological, psychological, and socially-psychological properties of the person which are shown in concrete activity. The efficiency and quality of this activity, defines its mental condition, work satisfaction and psychophysiological resources. In connection with constant change of character of work satisfaction, based on intellectual maintenance and increase in the quality of the work, there is a high demand for mental pressure, which is essential in the reliability of labour in concrete activities. However, they include the psychophysiological analysis of the activity of the person, optimization of its psychophysiological conditions, the decision on professional selection and professional suitability, definition and formation of individually-psychophysiological qualities, professional motivation of the person, important performance of this concrete activity, and the optimization of adverse mental conditions.

Theoretical Part

The Characteristic of Activity Motives

Within the limits of the subject matter "the general psychology", the maintenance and the characteristic of such concepts are represented via the motive, motivation, and motivational sphere of the person. However, activity without motive does not happen, as people are quite often guided by different motives. Motivation is one of the major characteristics of activity [1, 28].

The differentiation of concepts by A. N. Leontev "activity", "action" and "operation" definition of their dialectic interrelation, makes it possible to consider the motives of activity. The motive acts as the form of display of requirement. Consequently, the need of a person is at the bottom of its activity. The child grows, the place of the child in a society changes, and its activity becomes complicated; hence this leads to changes in the requirements — motivational sphere. The satisfaction of the allocated requirement is formed depending on the orientation of the person, external conditions, and circumstances prompting the activity. This prompting to a certain requirement is regarded as motive [2, 32].

Motives arise, develop, and form on the basis of requirements. Requirement is defined as the need of an organism which is necessary and important in certain conditions of life.

The question on development of requirements has a major value in the definition of the psychological conditions of the development of the person, and its motivational sphere. Evolving from requirement, motives nevertheless, are rather independent. The same requirement can be satisfied in various ways. The motivation of the person is formed during all his life under the influence of requirements-motivational sphere. In the course of formation of motivational sphere, there is a transformation of social estimations, and the sights of the person.

In psychological literature devoted to problem of motives, such concepts, such as "motive" and "motivational sphere" are more often used. Thus, *motives of activity* can be understood as the internal incentive forces which focus on the person in activity. Further, the motivational sphere is considered as the kernel of the person, including the system of motives in its hierarchy. The uniform system of motives of activity also constitutes the psychological base of the person. Thus, the separate forces focusing on the person in activity, motivational sphere, motives, parity, interstipulation, and hierarchy are not important. In

the foreign psychological literature, the return tendency — allocation of separate defining motives is traced. However, these literatures include Z. Frejda's "instincts", G. Mjurreja's "requirements", "valencies" and K. Levin's "vectors", "the basic promptings" F. Dollarda and others.

The behaviour of the person is polymotivated i. e. it is induced usually not by one, but with various maintenance, orientation, and randomness motives. Hence, the motivational structure is difficult enough. Motives are built in certain hierarchy which is defined both as an orientation of the person, and features of its external environment. Imagine a young man solving the question on where to go to study? He has three institutes, which are different educational institutions on his mind. Each of them is of different distance from his house. In one, there are renowned scientists, in the second, they have standard laboratories and libraries, and in the last one, his friends studies in the institute.

The motivational sphere of the person is dynamic. Hence, dynamics of motives can be positive or negative in relation to the efficiency of activity. This experimental data testify to dynamism of motivational sphere; for example, if 78% of pupils of the ninth class motives of dialogue prevailed in the eleventh class, similar motives takes priority only for 34% of schoolboys. However, this signifies that others on the foreground have displayed educational or professional motives.

Furthermore, both force of separate motives and force of motivational system as a whole must be in place in the course of stabilizing motivational changes. Change of meaning-created motives shows the development of motivational sphere of the person. Also, any activity that includes a number of intermediate actions, whose operations results in a number of factors transforming independent activity is not necessary. The motive of activity can shift to the purpose of action (motive shifts on the purpose), thereby transforming action into activity. On the basis of this phenomenon, there are qualitatively new relations of people to this validity. Changes in structure of motives can stimulate someone to begin to carry out basic meaning-created function, thereby making others become subordinates, playing a role of motives-stimulus.

For example, at home, the schoolboy is forced to sit down at the piano, and he is motivated by the condition: "would not go out to play except at a stipulated time, would not go for a walk, would not play the computer etc". The child is compelled to be engaged in playing the piano which is uninteresting to him. Thus, after a while, the schoolboy sits down willingly in front of the piano, passes time there, and finds the piano very interesting. Further, he continues the exercises for the sake of music and his own pleasure. This example shows the development requirement spheres of the schoolboy. As a consequence, development motives activity from external to the internal, from the motives directed on achievement of direct result (to be highly appreciated, a praise of seniors) to the motives realizing the result as a means of self-development. Any activity of the person is defined by motives which are closely connected among themselves, mutually operating against each other. Any motivation is defined by a number of factors, specific to this activity. Therefore, it is always systematic, i. e. characterized by an orientation, stability, and dynamism.

External and *internal* motives are allocated under the relation of motives. If motives are directly connected with activity, then they are internal, (it can be of interest to a subject's desire to learn something.) But if motives inducing activity are not connected with it, then they are external for this activity (it can be a desire to avoid a bad estimation or punishment; aspiration to show to contemporaries the knowledge and so forth).

On consciousness, presentation allocates *not realized* and *realized* motives.

Hence, the behaviour directed towards its satisfaction, is called motivated behaviour.

Motivation — *are* promptings in carrying out an activity, connected with satisfaction requirements of the subject. It sets the external or internal circumstances causing activity of the subject and defining its orientation.

It is necessary to tell that there is no consent between different authors concerning the maintenance of the term "motivation". The term motivation literally means «that which causes movement». On this basis, most often, this term is used for the designation of some tendency which aspires to reveal itself in behaviour. However, when you try to specify

the maintenance of this concept, you allocate various aspects to this mechanism.

According to one point of view, *motivation is a condition* which develops the structures of the central nervous system during behaviour. Objectively, it is expressed as the change of the electric activity of a brain, biochemistry, and apparently, it changes at molecular level. In the subjective plan of motivation, there are occurrences which correspond to certain experiences. As we tested, one becomes thirsty or hungry when he has not drank water or eaten anything within a long period of time.

Other approach is connected with the understanding of motivation as some initial push (prompting) which always passes in the behaviour characterised by the presence of a definite purpose. Therefore, motivation in this case becomes a synonym of purposeful behaviour. The *purpose* — is the main link in motivation. Therefore P. V. Simonov defines motivation through the mechanism of formation of the purpose. According to A. N. Leontevv, motivation is an object-related requirement. The main thing in such definition is that *motivation is a purposeful behaviour.*

The Practical Part of the Research

The aspiration to allocate motivation in two aspects is characterized by ordinary speech. Often used, the term "motivation", can be seen from two perspectives.

Thus, two phases allocates, when one speaks about motivation:

1) *The detection of the specific condition phase* expressing the occurrence of certain deficiency in the internal environment, i. e. requirement occurrence;

2) *The start and realisation of specialised purposeful behaviour phase* in relation to those external objects which are capable of satisfying the given requirement. However, the first phase initiates the second phase.

Furthermore, let us consider motivation as a condition. Long time ago, there was unresolved question on the specificity of motivational conditions. Therefore, the number of motivational conditions that exist, how many, and its requirements were not clear. Also, it was not clear if there is a uniform motivational condition as the general nonspecific that functions for all kinds of behaviours.

Physiological features of motivational conditions have been studied for the first time by P. K. Anohin, by whom position about *specificity of nonspecific activation* has been formulated. Contrary to the settled point of view that nonspecific activation of a bark of the big hemispheres from outside reticular formations differs only with intensity and localisation, he has assumed the existence of biological modalities. The motivational condition and purposeful behaviour has two phases of motivation, and are presented by the various electric activity of the brain. Both phases of motivation are well entered into the structure of the behavioural certificate of P. K. Anohin. They are connected with its various stages: a stage afferented synthesis where the leading part belongs to motivational excitation, and a stage of formation of an acceptor of results of action [3, 53].

Conclusion

In conclusion, studying the problems of motivation, F. Gertsberg have shown that factors which cause work satisfaction, differs from the factors resulting in dissatisfaction. This conclusion has been confirmed by other researchers. With requirements to avoid sufferings, inconveniences and discomfort, Gertsberg connects factors of labour activity which he names "preservation" factors (supervision, the behaviour of administration, interpersonal relations, stable work, earnings etc.). Their favorable condition leads to destruction of feeling of dissatisfaction (more often time). Factors are connected with the aspiration of the person to self-actualisation — «motivators» real experience of satisfaction: achievements in work, a recognition of these achievements, responsibility, advancement, and the possibility of professional growth [4, 32].

Influence of theories of Gertsberg and Maslou has affected classification of motives of the labour activity offered by Polish psychologist T. Tomashevsky. The first group of motives Tomashevsky named is "motives of benefit". Material benefit is, first of all a salary, but also the presence of dwelling and the satisfaction of other material requirements. Consequently, social benefit is first of all a professional pride [5, 48].

Tomashevsky considers that the worker should visualize dependence between labour productivity and received benefit. Therefore, it is important that in the

course of the work, he could see the attained results, and periodically received the information about attained results through its qualitative and quantity indicators. If such information arrives to the worker too late or "indirectly", the efficiency of all stimulating actions decreases considerably. Thus, in certain cases, workers can have a resentment towards their work, which would definitely affect their productivity.

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Study of internal and external learning motivation of students of pedagogical high school

Abstract: Education in high school is one of the most important stages in the professional formation, under which formed an adequate idea of their future profession and attitude towards it. The changes taking place in our society, determine the sense of tension in the already well-established categories and concepts correlated to the value-motivational sphere of the modern student personality. The emergence of social order based on economic self-organization actualizes the problem of study motivation of the future specialist, in particular teachers, to sphere of pedagogical work. It should be borne in mind that, on the one hand, the conditions of development of society requires competitive specialists focused on social values, on the other hand, the representation of today's young people are not focused on the internal, personal significance aside competitiveness and external social side

of success. It becomes particularly relevant resolution of the conflict in terms of formation of motivational preferences of pedagogical high school students to pedagogical work.

Keywords: professional orientation and consolidation, professionally pedagogical orientations and motivations, particular significance, high educational system, professional education

The urgency of the problem of the study of psychological factors in the formation of motivation of educational activity is determined by process optimization tasks of personal and professional formation of the expert in the course of high school education. This suggests the need for a search problem of psychological conditions and means of formation of motivational sphere of the student's personality, which is based on two basic premises: the need for knowledge of their characteristics and to develop methods for diagnosis and timely correction [1, 10].

In order to test private research hypotheses about the dynamics of motivation of educational activity of students of a pedagogical high school teacher provide different ratio of its structural elements, as well as the change of learning activities in the course of training in high school, we conducted a longitudinal study over five years on a sample of students (п= 50), using the following methods: a methodology «Studying motivation of students of pedagogical high school» of S. Pakulina, M. V. Ovchinnikov; method of «Study of motivation to succeed,» of S. L. Pakulina; test questionnaire motivational-semantic structures of Yu. M. Orlov — B. A. Sosnowski, a technique of «constructive motivation» of O. P. Yeliseyev; semantic differential of Ch.Osgood. To determine the motivational-semantic formations of students of pedagogical high school, we used the test questionnaire of Yu. M. Orlov — B. A. Sosnowski, developed on the basis of well-known foreign options (J. Atkinson, D. McClelland, H. Hekhauzen etc). Motivational strategies were investigated using the technique of O. P. Yeliseyev «Motivation constructiveness» [2, 45].

The results of an empirical study of the dynamics of motivation of educational activity of students of pedagogical high school allow making the following conclusions: the average values of the studied variables in general, statistically do not differ. The lack of significant differences between the variables of a course of study points to the stability of the structural elements of motivation of educational activity of students [3, 11].

Of the 18 elements of the structure of motivation of the doctrine, 12 elements found in all courses, 6 elements of the structure of motivation of educational activity of students of a pedagogical high school — knowledge, achievement, affiliation, achieving satisfaction, externalities-object strategy tools — there are not in all the courses (1–2 times — Low figure occurrence, 3 — average, 4–5 — high) (Table 1).

Table 1. – Quantitative indicators of the correlation analysis of the structural elements of motivation of educational activity (if p = 0.01)

№	Elements of the structure of motivation of educational activity	Reduction	Occurrence on 1–5 courses	The number of connections on 1–5 courses					
				1	2	3	4	5	in total
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1	Intrinsic motivation of studying	Intrin. MS	5	5	4	3	2	1	15
2	Extrinsic motivation of studying	Exter. MS	4	6	3	0	3	3	15
3	Exteriorized success	ExS	5	3	3	1	4	2	13
4	Internalized success	IS	5	4	5	4	2	3	18
5	Externalities-object strategy tools	EO	4	5	5	3	0	3	16
6	Externalities-subject competition strategy	ES	5	5	3	3	3	2	16

1	2	3	4	5	6	7	8	9	10
7	Internal-object avoidance strategy	IO	4	2	4	3	5	3	17
8	Internal-subject strategy of cooperation	IS	3	6	2	5	1	5	19
9	Achievement	A	1	0	0	1	2	0	3
10	Satisfaction of achievements	SA	2	0	2	4	0	1	7
11	Cognition	C	1	0	0	0	0	1	1
12	Satisfaction of cognition	SC	4	3	0	4	2	2	11
13	Affiliation	A	3	4	1	1	1	3	10
14	Satisfaction of Affiliation	SA	4	3	1	4	0	2	10
15	Dominance	Dm	5	5	1	1	3	1	11
16	Satisfaction of dominance	SDm	4	1	0	4	2	1	8
17	Attitude to studying	AS	4	0	3	2	0	3	8
18	Examination anxiety	EA	0	0	0	0	0	0	0

On the 1st course total number of connections is 27. Extrinsic motivation of studying is the most powerful in the number of connections in the pleiad, other variables also have a high rate of correlations within the pleiad: dominance, affiliation, adaptation strategies and rivalry. A small number of connections have a strategy of avoidance and satisfaction with domination.

Extrinsic motivation of studying provided by the aspiration of students to communicative interaction, the desire to take their place in the student team. A large number of relationships of domination provide a motivational strategy for competitiveness, and since on 1st course the primary adaptation when changing the educational system becomes important, then the strategy of adaptation has a sufficiently large number of connections [4, 22].

On the 2nd course the number of connections decreases and it is 20. Extrinsic motivation of studying is replaced by the inner motivation The strategy of adaptation by the number of connections is also leading, but strategy of avoidance appears with a large number of links the strategy of avoidance. A large number of connections get internalized success. A small number of correlations on the 2 course are affiliation and cooperation strategy.

Intrinsic motivation of studying closely linked with the motivation to succeed, which became an inner experience (internalized success). If on the 1st course university adaptation involves the use of coping strategies of competition, at the final stage of the adaptation strategy of avoidance is used when

there is a desire to maintain the current to the 2nd course success.

In the 3rd year the total number of connections — 21. The most powerful in the number of connections is the strategy of cooperation; other variables also have a large number of connections: the satisfaction of knowledge, dominance, and affiliation. A small number of links are relevant to studying, achievement, affiliation, dominance, exteriorize success.

Precisely on the 3 course appears constructive cooperation strategy, and this is due to the dominance of satisfaction of knowledge. A new kind of learning activities — studying and research activities — leads to a combination of satisfaction with knowledge of domination and affiliation.

On the 4 course the number of connections is sharply reduced and is 15. The largest number of correlations has a strategy of avoidance; a large number of connections have exteriorized success. The lowest number of correlations has affiliation, internal-subject cooperation strategy. In the 4th year the number of elements of the motivational structure, with a small number of connections exceeds the number of elements with the average number of connections. That is what makes a lead strategy of avoidance and the prevalence of exteriorized success.

In the 5th course the number of connections is restored and is 18. The leading and only is internal-subject cooperation strategy. A small number of correlations have become intrinsic motivation of studying and motivational-meaning education: knowledge, dominance, domination and achieve

satisfaction. Consequently, the structure of motivation of educational activity of students of a pedagogical high school in the 5th course is depleted.

Correlation analysis showed that there are pleiads of connections within the structural elements of studying motivation (e. g., motivational strategies, motivational and semantic structures, motivation to succeed).Their relationship to each course is different. The largest number of correlations between the studied variables observed at 1st course. On the 2nd, 3rd and 5th courses the number of connections is approximately the same amount. Dramatically reduced the number of correlations in the 4th year. The most complex and diverse structure of learning motivation — at 1 course as it contains more connections.

Of the 18 elements of the motivational structure of the number of connections dominants are: internal learning motivation externalized and internalized success and dominance of external-subject cooperation strategy. Further on the number of connections are external motivations of studying, attitude to studying, learning satisfaction, affiliation, dominance, external-object strategy adaptations of internal-object avoidance strategy.

In the factor structure of motivation of educational activity of the greatest number of factors is motivation of educational activity on the 2nd and 3rd courses (seven factors), motivation of studying at 1 and 5 courses has six factors, the least number of factors (five factors) in the motivational structure of the 4th course, which confirms results of correlation analysis (on the 4th course informed the fewest correlations).

In all factor structures there are various combinations of motivational strategies. Structural elements create a particular motivational strategy implemented in educational activities or behavior.

Knowledge of and satisfaction of studying present in the structure of educational motivation of students of 1st and 2nd courses. Students at this stage want to study. On the 5 course knowledge takes the form of commitment to it, but a positive attitude to studying appears on 1st and 3rd courses. Achievement presents in the structure of educational motivation of students of 1 and 3 courses, but satisfaction with achievement comes only on 2nd course. Affiliation is part of the educational motivation of students of the 2 and 5 courses. On the 2 course it is connected with the development of the student group. Communication in the studying profession is an essential tool for the future professional activity; therefore affiliation is included in the factor structure of studying motivation of 5th course students [5, 18].

Examination anxiety is manifested in the motivational structure of the educational motivation of students of the 2nd and 5th courses. The 2nd course students worry for real progress in learning and cognitive activity. On the 5th course of studying the examination anxiety associated with the end of high school, the need to protect the qualifying works, state examinations, as well as the updating of professional motives.

The results of empirical research, supported by mathematical and statistical methods that allow us to speak about the study confirmed a hypothesis that the dynamics of motivation of educational activity of pedagogical high school provided by: 1) different ratios of the structural elements; 2) change of learning activities in the learning process at the university [6, 12].

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Influence of psychological maintenance on development of educational motivation of students

Abstract: The article considers peculiar problems of motivation formation in pedagogical activity, motivational sphere of the personality by means of purposeful influence of psychological factors, influence in the form of active methods of study (psychological special course, practicum, training), problems of realization of active methods of study in studying process which were worked out on the basis of technology — collective-dialogue cognitive activity.

Keywords: motivation of pedagogical activity, professional orientation, professional intentions, professional choice, active methods of study, life-sense personality orientations, professionally meaningful qualities, motivational requirement sphere.

The problem of formation of motivation in pedagogical sphere, as it is known from this special list of literature remains to be hardly worked out both in theoretical and practical parts. Most research are devoted to the study of special pedagogical abilities, organization of the studying process, problems of interrelation between a teacher and a student. However, the problem of formation of motivation in pedagogical sphere still raises some debates [1, 17].

In order to prove one hypothesis that the formation of personality motivation can increase with the help of purposeful influence of psychological factors, by active methods of study (psychological special course, practicum, training), introduced in the curriculum of specialists training in higher educational institutions, we have conducted the following research which revealed the initial state of motivational formation among the students of the 2-nd year of study in pedagogical specialty.

Most part of the students in experimental (62.5%) and control (55%) groups did not have or had only partial idea about their future profession. Consequently, only 37.5% of students from experimental group and 20% from control group did not connect their professional intentions with the chosen specialty. This, in its turn, became the evidence of absence or insufficient development of necessary professional vocation [2, 23]. Results of a verification experiment showed insufficient formation of motivational component of the future teachers, they can be approved by lower index of progress and coefficient of students' attitude to the chosen specialty (0,45 — in experimental, 0,55 — in control groups).

Formative stage of experiment showed realization of principles of active methods of study worked out on the technology (collective-dialogue cognitive activity).

The students gradually become self-assured, develop their abilities in their professional sphere, take possession of professional experience, develop creatively, improve the system of valuable orientation [3, 14].

The aforesaid lets us come to a conclusion that formation of personality motivational sphere may be improved by the influence of psychological factors, means of influence such as active methods of education (psychological special course, practicum, training), introduced into the process of specialists preparation in higher educational institutions. The results of formative experiment affirmed main hypothetical suggestions of the research that under the conditions of formation of collective-dialogue cognitive activity in the process of education there occurs intensive development of motivation towards pedagogical activity which is expressed through personality changes and, consequently, in the increase of effectiveness of the studying process.

To check the suggestion that a personal sense manifesting itself in the form of its sensible aim set before a person belongs to a motivational sphere and predetermines a teacher's activity we have conducted a research of study of semantic field "My profession".

A subjective semantic field "My profession" is build on the basis of teachers' factual matrix. The results of teachers' subjective scaling of the properties describing their professional activity have been analyzed on the basis of factual matrix. For a strict order of properties there has been conducted a pilot experiment by J. Kelly methodology of personality designing which allowed to define the properties used for evaluation of professional activity. This methodology also lets escape possible distortions occurring under external thrust of those properties which are not peculiar for the person's professional activity [4, 27].

During the testing we have used a binomial criterion 'm' designed for contrasting the frequency of occurrence of some effect with theoretical or given frequency of its occurrence. 'm' criterion determines whether empiric frequency of occurrence of a property exceeds the given, theoretical one. The differences are true if an empiric frequency 'm' (emp.) is more or equal to critical meaning of 'm' (cr.).

Sensible aims have been studied on the basis of psychosemantic research with the help of factor analysis by method of main components with Varimax circulation. Data of subjective scaling of properties describing a professional activity have undergone factor analysis.

Main aim of studying semantic field "My profession" was to investigate teachers' sensible aims towards their professional activity. We were interested in the sensible aim as the leading stage of purposeful activity regulation which represents the form of expression of a personal sense — be ready to fulfill a definite activity. A personal sense displayed in the form of a sensible aim belongs to the sphere of motivation and determines our activity. Our data have revealed different motifs — from self-actualization to escape from being actively involved. Subjective images of the profession in the way they have been formed in the professional teacher cognition are the bearers of those sensible aims, "standardized invariants of personal sense" of professional group members (in our case — groups of teachers). It has become a confirmation of a private hypothesis of our research.

To check a hypothesis that adequacy between the level of functioning of personal sense system and direction of professional activity, which is manifested in the sensible attitude to these elements of reality and to a person as an object of this relation, postulates motivation necessary for an effective activity, we have conducted a research to study the life-sense personality orientations and their interdependence with the development of professionally-meaningful qualities.

To study the dynamics of life-sense personality orientations and their interdependence with the development of professionally-meaningful qualities in the process of professional activity, which has a socially-oriented bias, we have conducted a research where 105 school-teachers took part. The first group consisted of those whose working period did not exceed more than 3 years, and the second group of those who worked more than 3 years. Such division made possible to study the peculiarities of functioning of personal sense system both on the level of adapting to a professional activity and during the activity realization. The data obtained were transformed to standard index (stenign) and were interpreted in the frames of new concept of life-sense orientation tests [5, 74].

Life-sense orientation of young teachers is expressed in the minority by all the subscales (Table 10). It can be explained by the adapting period of professional introduction. A special attention deserves the indices of subscales "Process", "Result", "Control locus — I" which express the results under average. It points at unsatisfactory state with the present life situation and the past experience which do not allow to accept the full responsibility for activity results.

Personal sense revealing itself in the form of sensible aim belongs to the sphere of motivation and determines a teacher's activity.

Personality motivational sphere has a dynamic character. Quality peculiarities of development of person's motivational sphere depend on personal characteristics. Adequacy between the level of functioning of personal sense system and direction of professional activity, which is manifested in the sensible attitude to these elements of reality and to a person as an object of this relation, postulates motivation necessary for an effective activity.

The applied meaning of the research results is proved by the special courses program "Peculiarities of personality motivation sphere" and a motivational training, program of developing non-monetary motivation which were worked out on its basis. There was also worked out a model of psychological accompaniment of formation and development of motivation towards pedagogical activity.

In general, the work has set forth a range of new problems, with their investigation there might be connected perspectives of a more valuable preparation of future teachers, also the perspectives of creation of favorable conditions which give a possibility for self-realization of a teacher personal potential.

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